

# **National Security Challenges: Insights from Social, Neurobiological, and Complexity Sciences**

Topical Strategic Multi-Layer Assessment (SMA) and U.S. Army ERDC Multi-Agency/Multi-Disciplinary White Papers in Support of National Security Challenges

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# Table of Contents

<b>List of Figures and Tables .....</b>	<b>vi</b>
<b>Preface .....</b>	<b>viii</b>
<i>Lieutenant General Michael Flynn, USA .....</i>	<i>viii</i>
<b>Introduction and Executive Summary .....</b>	<b>xii</b>
<i>Dr. Allison Astorino-Courtois, Dr. Hriar Cabayan, Dr. William Casebeer, Ms. Abigail Chapman, Dr. Diane DiEuliis, Dr. Charles R. Ehlschlaeger, Lt Col David Lyle, Dr. Christopher Rice.....</i>	<i>xii</i>
<b>1 Populations in their Environments: Factors Impacting the Fragility of "Peace" .....</b>	<b>1</b>
1.1 Left of bang: The value of socio-cultural analysis in today's environment.....	1
<i>LTG Michael Flynn.....</i>	<i>1</i>
1.2 Introduction to populations in their environments .....	12
<i>Dr. Charles R. Ehlschlaeger.....</i>	<i>12</i>
1.3 A population centric view of social, political and economic indicators of a "fragile state" .....	14
<i>Dr. Cullen S. Hendrix.....</i>	<i>14</i>
1.4 Analytic methodologies, information fusion, and data acquisition.....	23
<i>Mr. David A. Browne, Mr. Joseph T. Lee, Mr. Eric A. Knudson .....</i>	<i>23</i>
1.5 Assessing state stability: Toward a repeatable approach to modeling states and their environments to support counter-instability planning.....	32
<i>Dr. Allison Astorino-Courtois and Dr. Belinda Bragg.....</i>	<i>32</i>
1.6 Piercing the noise floor: The EUCOM Deep Futures Method and the acquisition of socio-cultural insight in support of strategy and policy formulation .....	47
<i>Mr. Bill Busch, Ms. Shana McLean .....</i>	<i>47</i>
1.7 Gaps and ways to improve how populations and social groups can be monitored via journalistic and social media to detect fragility .....	57
<i>Mr. Kalev Leetaru and Dr. Anthony Olcott.....</i>	<i>57</i>
1.8 Gaps and ways to improve how populations and social groups can be measured.....	65
<i>Dr. Charles Ehlschlaeger, Dr. Eric Dimperio, Mr. Jeffery Burkhalter, Ms. Marina Drigo, Mr. Azad Amir-ghessemi, Mr. Patrick Edwards.....</i>	<i>65</i>
<b>2 Global Patterns and Trends in Armed Conflict: Theories and Evidence.....</b>	<b>75</b>
<i>Dr. Christopher Rice.....</i>	<i>75</i>
2.1 Introduction: The global decline in armed conflict .....	75
2.2 Documenting the trends in armed conflict .....	78
2.3 Theories and evidence .....	84
2.4 National security policy implications .....	96
<b>3 Neurobiological, Cognitive and Social Science Insights on Radicalization and Mobilization to Violence .....</b>	<b>104</b>

3.1	Basic introduction to the fields of neurobiology, cognitive and social science as they relate to the radicalization and mobilization.....	104
	<i>Ms. Abigail Chapman, Dr. Diane DiEuliis, Dr. Bill Casebeer .....</i>	<i>104</i>
3.2	Social identification, influence and recruitment.....	112
	<i>Dr. Janice Adelman, Ms. Abigail Chapman, M.Sc.....</i>	<i>112</i>
3.3	Using the Theory of Moral Disengagement in audience segmentation and the development of counter-radicalization messages .....	119
	<i>Dr. Chris Rate, Dr. Rob Neff.....</i>	<i>119</i>
3.4	On tribalism: Auxiliaries, affiliates, and aspirational political violence .....	127
	<i>Mr. Christopher P. Costa, Dr. Jeffrey Kaplan .....</i>	<i>127</i>
3.5	In-group/out-group distinctions—neuroscience findings and upshot .....	154
	<i>Dr. Emile Bruneau .....</i>	<i>154</i>
3.6	Neurobiology of sacred values and implications for radicalization process .....	164
	<i>Dr. Greg Berns.....</i>	<i>164</i>
3.7	Culture and radicalization .....	173
	<i>Dr. Joan Chiao .....</i>	<i>173</i>
3.8	Neurobiological influences on radicalization: Ventures, values and violence .....	182
	<i>Dr. Pete Hatemi, Dr. Rose McDermott.....</i>	<i>182</i>
3.9	Neuro-cognitive science and technology: Assessing and affecting social behavior and avoiding Icarus' folly .....	194
	<i>Dr. James Giordano.....</i>	<i>194</i>
<b>4</b>	<b>Seeing the World As It Is: Complex Adaptive Systems Approaches as Multi-Source, Multi-Input Integrators .....</b>	<b>200</b>
4.1	Introduction.....	200
	<i>Lt Col David Lyle.....</i>	<i>200</i>
4.2	Complexity science for boosting intelligence analysis.....	204
	<i>Dr. Claudio Cioffi-Revilla .....</i>	<i>204</i>
4.3	Complexity and military strategy.....	214
	<i>Lt Col David Lyle, USAF.....</i>	<i>214</i>
<b>5</b>	<b>Public and Private Cooperation .....</b>	<b>230</b>
	<i>Admiral James Stavridis, Dr. Evelyn Farkas.....</i>	<i>230</i>
5.1	Introduction.....	230
5.2	“Jointness” evolves to “whole-of-society” .....	231
5.3	The case for collaboration: Effectiveness and efficiency .....	236
5.4	The challenges of collaboration.....	238
5.5	Collaboration: A 21 <sup>st</sup> century force multiplier .....	242
	<b>Appendix A: Human Development Index, Country Rankings, 2011 .....</b>	<b>245</b>
	<b>Appendix B: Best “Bang for the Buck” in HDI Outcomes Relative to Income, 2011 .....</b>	<b>247</b>
	<b>Appendix C: The Conflict and Peace Literature and Data.....</b>	<b>252</b>
	<b>Appendix D: Measurement .....</b>	<b>257</b>
	<b>Appendix E: Data Analysis .....</b>	<b>260</b>



# List of Figures and Tables

## Figures

Figure 1. Conflict continuum. ....	8
Figure 2, A population-centric approach to state fragility.....	18
Figure 3. Mapping human development, gender equality, and human freedom in 2011. The plot uses data on the Human Development Index (UNDP 2011), Gender Inequality Index (UNDP 2011), and the Freedom House Civil Liberties data (Freedom House 2011) to render a multi-dimensional picture of population-centric security.....	22
Figure 4. Variable tree “snapshot.” .....	25
Figure 5. Whole of society. ....	27
Figure 6. Illustrative Risk Map based on World Bank, UN, and Bureau of Statistics Data.....	29
Figure 7. Illustrative Capacity Building Map (based on World Bank, UN and Bureau of Statistics Data).....	30
Figure 8. SSRT0 JOC state stability and instability triggers .....	37
Figure 9. Generic State STAM.....	39
Figure 10. STAM Operationalized for Pakistan .....	45
Figure 11. The noise floor and the operational environment.....	49
Figure 12. Deep futures knowledge lifecycle. ....	53
Figure 13. The Deep Futures Product Line.....	55
Figure 14. Microdata household characteristics in Google Earth.....	73
Figure 15. Global trends in armed conflict, 1946–2011.....	76
Figure 16. Armed conflicts by intensity, 1946–2010.....	79
Figure 17. Average number of international conflicts per year, 1950–2008.....	80
Figure 18. Battle deaths in armed conflicts by region, 1946–2008. ....	81
Figure 19. Average battle deaths by conflict type, 1946–2008. ....	82
Figure 20. Global trends in armed conflict, 1946–2011.....	84
Figure 21. Warfare magnitude and societal income, 1946–2010. ....	86

Figure 22. Peace treaty duration by conflict type, 1945–2004. ....	87
Figure 23. Male age composition and conflict severity. ....	90
Figure 24. Global trends in governance and warfare, 1946–2011. ....	92
Figure 25. Armed conflict, male youth %, and polity score. ....	92
Figure 26. UN and non-UN peacekeeping operations, 1948–2007. ....	95
Figure 27. Countries targeted by multilateral sanctions, 1948–2007. ....	96
Figure 28. Tribalism and the “New Trinity.” ....	151
Figure 29. Interacting domains of environments, agents, and actions.....	195
Figure 30. Neurocognitive dynamics relating past, present and future experiences relative to decision-making. Note that the OODA loop is modified by previous dispositions (D) and resultant consequences (C). ....	196
Figure 31. A very basic model of social adaptation. ....	222

## Tables

Table 1. COIN and stability operations objectives. ....	34
Table 2. STAM assumptions. ....	38
Table 3. Mechanisms of moral disengagement.....	120



## Preface

*Lieutenant General Michael Flynn, USA*

During the November 2011 SMA Conference, I shared the following thoughts and perspectives on the complexities of our national security environment and the challenges it poses for the U.S. Government (USG) and the intelligence community (IC).

1. The world environment is ever changing and uncertain. Old concepts of peace and war have been superseded and the East/West divide of the Cold War era has disappeared, yet the U.S. has experienced an era of persistent conflict.
2. Although the future defies accurate prediction, it is imperative to prepare for it nevertheless. This is a critical challenge for the U.S.; while we are in the second decade of the 21<sup>st</sup> century, many people are stuck in 20<sup>th</sup> century thinking about our security challenges.
3. The spread of free markets and open societies has accelerated globalization. This intensifies some of the dangers the USG faces, contributing to the rapid evolution of many threats to U.S. national security. Major threats include emerging nuclear powers, failing states, virtual and non-state actors, a fragile global economy, and a stressed ecosystem. The nation's next conflict is not likely to be a conventional war, but rather an unconventional conflict against a highly asymmetrical threat. Such threats exist today; they are transnational and global in scale, and are so amorphous, complex, and multi-modal that our IC has not grasped them fully.
4. The aggregate scale of these threats imposes tremendous costs on the USG that it can ill afford. These costs are compounded by the fact that the USG is still organized along Cold War lines. This organization no longer makes sense; many of our national security structures were designed to contain communism, but the threat and the environment have changed. The USG must also change. The main lesson of the past decade is that the USG must continually organize toward the goals it is trying to achieve, and do so faster than the security environment is changing.
5. The Combatant Commands should evolve from their current geographic alignments to a more agile structure capable of rapidly organizing cross-functional capabilities to address emerging issues. This would al-

so require the reorganization of the IC and reprioritization of its missions. In a multi-modal world, adversaries operate in a business construct. They do not remain in the categorical confines that we impose upon them; they operate at the points of convergence in those categories. The USG's categorization of threats impedes it from addressing threats effectively; furthermore, the explosion of information and increase in intelligence requirements outpace the intelligence community's ability to respond to them.

6. The USG is regularly surprised by events that could feasibly be anticipated. It needs to consider integrating other information gatherers, such as polling companies, social media organizations, and academia, to contribute to intelligence collection. Not all intelligence has to be bought or stolen. The USG has to get "left of boom" to prevent armed conflicts and the accompanying depletion of our resources. Actions to mitigate crises need to include economic, diplomatic, and ecological components, not just military solutions. During crises, many individuals and groups are drawn into illicit activities, sowing the seeds for future instability and violence. Instead of focusing on war, the USG needs to focus on the precursors of war. One thing it needs to do is to engage populations before starting a counterinsurgency campaign. There have been 32 major insurgencies since 1960 and, in 22 of these cases, the insurgent forces were the victors. Irregular warfare is the template for future battlefields; U.S. interests are best served by preventive measures that ensure these wars are never fought.
7. The USG should use its intelligence apparatus to help the world deal with hunger, natural disasters, and other dimensions of human security. Recently, the Chief Operating Officer of Facebook argued that globalization is changing the way people think, learn, socialize, and develop relationships. We are virtually connected; this is important because the USG needs to learn how to operate in a world where connection does not result in disaffection, but rather unites people. Technology is bringing the world together in both obvious and surprising ways: if Facebook were a country it would be the third most populous in the world. Relationships that used to be intangible have become tangible. The Arab uprisings used social media technologies to amplify their voices to governments that were not listening, giving a name to the faces of those who were previously invisible. U.S. forces cannot wait for doctrine to tell them what to do in this complex, rapidly evolving environment. Even counterinsurgency (COIN) doctrine was written during the war and it is still to be determined whether it is correct.

8. There is an inherent tension between comprehensiveness and agility. U.S. forces are challenged to be comprehensive but end up requiring much greater agility; however, if forces focus on doing a few things with agility they may fail. So how can U.S. forces balance these competing desires? The answer is through partnerships. Ten years ago, when I served as an Army Corps G-2, 80% of critical information was gathered through traditional intelligence. One year ago as ISAF J2, I relied on 80% open source information for campaign planning and 20% intelligence sources to provide richness and depth to the open source material. This was possible because of ISAF's population-centric strategy that was not solely capture/kill oriented. The USG needs to build, leverage, and nurture partnerships; our nation is made more secure through intelligence integration. Partner engagement is important because the U.S. cannot do it all alone. The Director of National Intelligence's goal is for analysts to identify themselves as part of the IC, not as members of a single one of its 16 agencies. Intelligence organizations need to work with local, tribal, and law enforcement organizations as well as the private sector. Strategic alliances are vital to the preservation of the American way of life and its national security; we must be aggressive in creating them. One measure of success is when maneuver battalion commanders are the ones screaming for a specific IC product or tool, and not just senior decision makers.

The challenges that we face are daunting. In this complex new environment, U.S. forces must deal with the negative fallout from globalization, increasing competition for natural resources, rapid urbanization, weak governments and economies, and a burgeoning world population. The amount of information on Facebook doubles every 6 months. This underscores the nation's need to understand what is happening on a human scale. The world is changing and the agencies of the USG must figure out how to communicate and share.

The IC needs to extend its aperture beyond the enemy and look at the environment behind the enemy. This requires a new mindset that focuses on the precursors of war, not war itself. The USG needs to invest in the analytic community—they are our strategic thinkers. Advanced analytics and critical thinking are the two most important components of the analytic workforce. The best analysts are those who can solve complex problems. Another change that has to be made is to start bringing data to the analyst and not make the analysts spend time finding data. The nation cannot af-

ford the numerous analysts that we employ today. The focus needs to be on making analysts more efficient, therefore more effective.

Finally, the IC needs to visualize data faster and through a broader aperture. Decision makers often only see data presented in one or two dimensions. The ability to visualize data is important. Other dimensions that need to be considered include the impact of the environment and the effects of globalization. A flat map no longer provides sufficient information. This kind of visualization can reduce risk and cost to the nation. The USG needs to look beyond current conflicts and invest in capabilities that support the requirements of the future. The nation's prosperity is linked to globalization; similarly, the nation's security is linked to global security.

## Introduction and Executive Summary

*Dr. Allison Astorino-Courtois, Dr. Hriar Cabayan, Dr. William Casebeer, Ms. Abigail Chapman, Dr. Diane DiEuliis, Dr. Charles R. Ehlschlaeger, Lt Col David Lyle, Dr. Christopher Rice*

This white paper addresses many of the key national security challenges identified by LTG Flynn in the *Preface*, including the following:

1. The threat environment is highly asymmetric, amorphous, complex, rapidly changing and uncertain.
2. There is need for speed and flexibility in U.S. intelligence gathering and decision making.
3. Current analytic deficiencies arise from the Cold War structure and insularity of the IC, complexity of the environment, and how we currently think about threats.
4. New thinking needs to consider populations as important actors (e.g., mobilization via social media, etc.) and the social and resource inequities and grievances that spawn conflict.
5. Following the end of the Cold War, the expected “peace dividend” has failed to materialize; the U.S. has experienced an era of persistent conflict.

General Flynn’s remarks suggest a number of specific challenges to analysts and planners:

1. Reevaluate our concept of what constitutes a “threat” in the current and evolving world environment both from a U.S. and foreign perspective.
2. Expand the sources of information used to understand the environment.
3. Consider the population of an area as an important actor; also, assess outside entities within the periphery of destabilization that have the ability to leverage support to insurgent groups, which will negatively effect U.S. operations.
4. Be proactive; focus on the causes and precursors of conflict rather than solely war and conflict.
5. Learn to understand and respond flexibly and faster; be more “adaptive” and forward thinking.

The overriding theme in this White Volume is how best to assess U.S. long term national security challenges, employing a global perspective that accounts for the changing political, economic, social, and psychological profiles of populations, and the rapid changes they experience in a globally connected information environment.

The target audiences for this White Volume are planners, operators, and policy makers. With them in mind, the articles are intentionally kept short and written to stand alone. All the contributors have done their best to make their articles easily accessible. The papers emphasize “enduring” long term themes that are focused on the interactions of populations and their environments. They are not U.S.-centric, but multi-perspective and examine underlying long term phenomena.

In describing these long term challenges, it is important to remember that we are dealing primarily with human behavior rather than physical phenomena. Methods involving mechanistic approaches and point predictions will not be feasible; rather we will describe techniques to map out ranges of possible futures. The difficulties are increased because security threats are global in scale and must be anticipated as far in advance of a crisis as possible. Multidisciplinary approaches are called for and validation of models may be difficult, costly, or in some cases impossible.

This collection of essays explores future population-centric national security challenges through the lens of the latest research from the social, neurological, and complexity sciences. The first section, *Populations in their Environments: Factors Impacting the Fragility of “Peace,”* argues that an understanding of a population’s propensity for social and political conflict is not possible without an appreciation of how its needs and interests relate to and are affected by the physical environment. The second section, *Global Patterns and Trends in Armed Conflict: Evidence and Theories*, describes recent and ongoing research on historical patterns and trends in armed conflict, which have documented a systemic decline in armed violence worldwide since the end of the Cold War, even as the U.S. has experienced an “era of persistent conflict.” The third section, *Neurobiological, Cognitive and Social Science Insights on Radicalization and Mobilization to Violence* discusses the neurological and cognitive drivers of the social behaviors that propel people to radicalize and pursue violence. The fourth section, *Seeing the World As it Is: Complex Adaptive Systems Approaches as Multi-source, Multi-input Integrators* discusses the potential of com-

plexity science to help us combine insights from the other disciplines into a coherent system of understanding, and apply this framework directly to the challenges military planners face. The fifth section, written by Admiral James Stavridis and Dr. Evelyn Farkas, speaks to the importance of partnership and collaboration between public and private organizations to achieve mutually desired security outcomes. Finally, Dr. William Casebeer from DARPA provides an epilogue considering insights from the first two sections and how the complexity sciences might be employed to address the challenges faced by strategic thinkers, military analysts and planners, and decision makers.

# 1 Populations in their Environments: Factors Impacting the Fragility of "Peace"

## 1.1 Left of bang: The value of socio-cultural analysis in today's environment<sup>1</sup>

*LTG Michael Flynn<sup>2</sup>*

Hard lessons learned during counterinsurgency operations in Iraq and Afghanistan, counter-terrorist operations across continents, and the Arab Spring all contributed to the Intelligence Community's (IC<sup>3</sup>) growing recognition of the importance of understanding the "human terrain" of operating environments. The Department of Defense (DoD), its service branches and COCOMs<sup>4</sup>, and the IC more broadly responded to the demand for socio-cultural analysis (SCA) by creating organizations such as the Defense Intelligence Socio-Cultural Capabilities Council, the Human Terrain System, and

CENTCOM's Human Terrain Analysis Branch, among others. For large bureaucracies, the DoD and IC reacted agilely to the requirement, but the robust SCA capabilities generated

Former-Secretary of Defense Gates stated that the IC needs to "prevent festering problems from growing into full-blown crisis which require costly—and controversial—large scale American military intervention."

across the government over the last decade were largely operationally and tactically organized, resourced, and focused. What remains is for the IC to formulate a strategic understanding of SCA and establish a paradigm for incorporating it into the intelligence process.

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1 This article will appear in NDU's PRISM. PRISM is published by the National Defense University Press for the Center for Complex Operations. PRISM is a security studies journal chartered to inform members of U.S. Federal Agencies, allies, and other partners on complex and integrated national security operations; reconstruction and nationbuilding; relevant policy and strategy; lessons learned; and developments in training and education to transform America's security and development apparatus to meet tomorrow's challenges better while promoting freedom today

2 LTG Flynn is currently serving as Assistant Director for National Intelligence, Partnership Engagement; he has been confirmed as new Director of Defense Intelligence Agency.

3 For brevity, the Intelligence Community (IC) also encompasses the Defense Intelligence Enterprise (DIE) in this paper.

4 Combatant Commands.



Simply stated, the lesson of the last decade is that failing to understand the human dimension of conflict is too costly in lives, resources, and political will for the nation to bear. Once a conflict commences, it is already too late to begin the process of learning about the population and its politics. The optimal condition is for our leaders to have the ability to influence budding conflicts “left of bang,” that is before tensions turn violent. Left of bang, policy options are more numerous, costs of engagement are lower, and information flows more freely to a larger number of actors. After bang, options decrease markedly, the policy costs rise rapidly, and information becomes scarce and expensive. More than ever, military, intelligence, and diplomatic professionals recognize this reality.

A tremendous opportunity now exists for the IC to build upon its world-class analytical foundation. Complex social phenomena, such as population growth and demographic change, economic globalization, and the information and communication revolutions, demand even greater attention. Unfortunately, the IC struggles to integrate SCA into traditional collection and analysis because its structures remain rooted in the state-centric context of the Cold War. The evolving nexus of threats among terrorist groups, transnational criminal organizations (TCOs), cyber-criminals, humanitarian crises, and pandemics is merely symptomatic of the need to re-conceptualize the way populations, political systems, and geography intersect. A new concept should seek to explain how populations understand their reality, why they choose to either support or resist their governments, how they organize themselves socially and politically, and why and how their beliefs transform over time.

In contrast to the IC’s typical state-centric analysis that seeks to determine how states can or do impose stability, the IC must also develop a sensory capability to better detect the precursors to political change, a “social radar” with a level of granularity, understanding, and confidence that enables policy leaders to make informed decisions that maximize national influence left of bang. As a first step toward building a population-centric social radar, this article explains why integrating SCA remains counterintuitive to the IC, describes how social amplifiers compound the difficulty, offers a framework for inexpensively and proactively capturing socio-cultural information, and suggests a paradigm for converting socio-cultural information into intelligence production.

### 1.1.1 Old structure, new threats

That we are largely uninformed about populations and ill prepared to understand them is a natural consequence of the IC being built upon the edifice of Cold War politics. Much of the IC was established to detect, understand, and maneuver against adversaries' actions and intentions by employing all methods of national influence, including military assets, economic strength, and diplomatic skill. Sovereignty as a core principle of international order meant that states would not generally concern themselves with how other governments managed their populations.<sup>1</sup> Yet in many parts of the world, weakening or eroded state sovereignty enables many of the above threats against our national interests to grow. Under conditions of meaningful sovereign state authority, these issues are manageable. However, failed and failing states create circumstances whereby aggrieved populations and non-state actors can assert themselves in ways that are not easily comprehensible to the IC. To frame the challenge ahead, the Failed States Index asserts that approximately 20% of the world's states are now considered to be failed states or are at severe risk of failing.<sup>2</sup>

While our current intelligence architecture proved successful in the context of the Cold War, it has been much less successful in the world of weak and failed states unleashed by the collapse of governments whose survival was, ironically, predicated upon the largesse provided by the U.S. and Soviet Union. In a recent Center for Strategic and International Studies report, Anthony H. Cordesman and Nicholas S. Yarosh reinforce this point stating, "countries, intelligence experts, members of international institutions, NGOs, and area experts need to do a far better job of developing basic data on the causes of instability...Far better data are needed in key areas like unemployment and underemployment,

"In every year since the end of World War II, the number of ongoing internal armed conflicts has exceeded the number of inter-state conflicts...The number of interstate conflicts has remained fairly stable, ranging between zero (1955, 1959, 1993, and 1994) and six (1987). In 2004, again all of the 30 conflicts were fought within states. Three of them were internationalized." (Harbom and Wallensteen 2005, p. 627)

1 Kegley, Charles W., Jr. and Gregory A. Raymond. *Exorcising the Ghost of Westphalia: Building World Order in the New Millennium*. (Upper Saddle River: Prentice Hall, 2002), 131-136.

2 "The Failed States Index 2011." *Foreign Policy Magazine*.  
[http://www.foreignpolicy.com/articles/2011/06/17/2011\\_failed\\_states\\_index\\_interactive\\_map\\_and\\_rankings](http://www.foreignpolicy.com/articles/2011/06/17/2011_failed_states_index_interactive_map_and_rankings) (Accessed May 29, 2012).

income distribution, the efficiency of the state sector, barriers to growth and economic development, the size and function security forces and police, and quality of governance.”<sup>1</sup> Equating sovereign authority with stability is no longer analytically appropriate. As Cordesman and Yarosh indicate, today’s conflicts are more about ideas and governance than they are about invasion by a foreign government.

The state-centric “order” the West enjoyed during the Cold War is in today’s world assessed by many populations to be illegitimate and worth their sacrifice to change. Many states formed after WWII and during 1960’s era decolonization are dissolving or losing functional sovereignty because their regimes have been unwilling or unable to govern legitimately on behalf of many—or even most—of their people. Their populations are organizing in social movements or around insurgencies to change their circumstances.<sup>2</sup> Even worse, narco-traffickers and other resource warlords are now taking advantage of popular discontent with governments and asserting military dominance over valuable tracts of territory often at the expense of the population itself.<sup>3</sup> When amplified by social tensions (Section 1.1.2), populations as sub-national actors can have greater political influence than in the past, with many of them threatening or raising the costs of maintaining the international political and economic order.

### **1.1.2 Amplifiers and accelerators**

#### *1.1.2.1 Population growth*

Global population has doubled since the early 1950s, predominantly in parts of the world where institutions of state are least able to create the conditions for social order and stability. Despite a trend towards slower rates of population growth on the global scale, through 2050 more than 95% of future world population growth will occur in developing nations. By 2050 the populations in some of the world’s least developed countries—many of which are experiencing or recently emerging from conflict—will be at least double the size they are today, including Afghanistan, the Democratic Republic of Congo, Iraq, Liberia, Niger, Somalia, and Uganda.

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1 Cordesman, Anthony H. and Nicholas S. Yarosh. “The Underlying Causes of Stability and Unrest in the Middle East and North Africa: An Analytic Survey.” Center for Strategic and International Studies. (May 20, 2012), 2.

2 Harbom, Lotta and Peter Wallensteen. “Armed Conflict and Its International Dimensions, 1946-2004.” *Journal of Peace Research*. Vol. 42, #5 (SEP 2005), 623-635.

3 Klare, Michael T. *Resource Wars: The New Landscape of Global Conflict*. (New York: Metropolitan Books, 2001), Chapter Eight.

These countries are also home to some of the world's poorest and also youngest populations, where continued high rates of population growth have created a large youth bulge.<sup>1</sup>

This disenfranchised youth struggles for limited resources, employment opportunities, a sense of belonging, and upward mobility in their communities, tribes, or villages. In many cases, the very states of which they are "citizens" proactively deny them opportunity.<sup>2</sup> With limited options available, the allure of quick wealth associated with illicit activities and the sense of purpose preached by radical movements are sufficient to mobilize enough of them to threaten many states' integrity.

Even important demographic changes within allies should be of interest to the IC. For example, significant aging in Europe in concert with growing Muslim populations could potentially alter the economic capacity or political calculus of governments to support the U.S. in foreign affairs. On the other hand, corresponding aging trends in China might prohibit future military adventurism due to the high costs associated with an expansive welfare state.<sup>3</sup> Whether driven by youth bulges, deprivation, or aging, demographic changes now matter more analytically than they have in the past.

#### 1.1.2.2 *Economic globalization*

Globalization entails the qualitative and quantitative increase in the scope and intensity of "interactions and interdependencies among peoples and countries of the world."<sup>4</sup> The progressive erosion of barriers to trade—whether based on policy, geography, or transportation—has enabled a rapid expansion of trade and contact among previously distant populations. Economic globalization has resulted in an incredible degree of prosperity and rising incomes at an unprecedented rate

"In transportation, shipping costs fell by more than two-thirds between 1920 and 1990, and airline operating costs per mile fell by 60 percent from 1960 to 1990." (Cohn 2005, 12)

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1 State of the World Population 2011. United Nations Population Fund (2011), 3-6.

2 Arab Human Development Report 2009: Challenges to Human Security in Arab Countries. United Nations Development Programme (2009), 2-7.

3 Haas, Mark L. "A Geriatric Peace? The Future of U.S. Power in a World of Aging Populations." *International Security*, Vol. 32, #1 (Summer 2007), 112-147.

4 Cohn, Theodore H. *Global Political Economy: Theory and Practice*, 3rd Ed. (New York: Pearson Longman, 2005), 10-11.

for those able to participate.<sup>1</sup> The BRIC countries—Brazil, Russia, India, and China—demonstrate the amazing advances that accrue with freer markets, substantive technology transfers, and low policy barriers to trade.

However, economic globalization also amplifies vexing challenges, such as income inequality within nations, environmental degradation, the income gap between developed and developing nations, and fears of cultural decay. The increasingly competitive and interconnected world raises the potential for conflicts and crisis to escalate in multiple domains.<sup>2</sup> Ethnic, racial, and religious stratifications correlated with differences in opportunity and wealth often reinforce existing tensions within countries, creating fertile ground for exploitation by non-state actors, like TCOs and extremist groups. Individuals no longer accept the status quo from their governments and are demanding a better way of life for themselves their families and communities, especially when they know alternatives exist.

#### *1.1.2.3 The communication revolution*

The explosion in communications technology, social media in particular, has dramatically increased a population's ability to organize and communicate. Whereas state governments could effectively limit association and information exchange in the past, modern internet and cell phone coverage makes this objective more difficult. For example, as of December 2011 there are over 2.1 billion internet users with 3 billion email address, 152 million blog sites, and 276 million web sites with 45% of users under the age of 25. Facebook has more than 800 million active users who log-in 175 million times every 24 hours, 65 million through mobile devices, sharing over 30 billion pieces of content each month. Traditional closed societies around the world are also beginning to use these mediums to rapidly disseminate information. In China, Weibo—a micro blogging website equivalent to Twitter—has more than 250 million users, most of whom are educated and white collar, and it is

“In communications, for example, the cost of international telephone calls fell by more than 90 percent from 1970 to 1990, telecommunications traffic increased by 20 percent a year in the 1980s, and more than 50 million people were using the Internet by the late 1990s.” (Cohn 2005, p. 12)

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1 Collier, Paul. *The Bottom Billion: Why the Poorest Countries Are Failing and What Can Be Done About It*. (New York: Oxford University Press, 2008).

2 Mission Command White Paper 3 April 2012, Joint Publication 3-0 “Joint Operations” Martin E. Dempsey, General U.S. Army, Chairman of the Joint Chiefs of Staff.

becoming a major influence in Chinese society. Grass roots social movements, as evidenced during the Arab Spring, are using these capabilities to organize demonstrations, spread messages to large audiences, and even as a tool to overthrow governments.

While the socio-cultural and research community has been interested in social media and how to leverage it for intelligence purposes for years, the Iranian Green Revolution and the Arab Spring gave rise to a new fascination with it. However, the use of social media was incidental, not causal, to these popular uprisings. Discontent existed before the explosion of social media and it was identifiable and measureable even in social media's absence. What social media does provide populations is a virtual organizing capability in the face of physical repression by regimes. Unfortunately, there is a tendency to view the geospatial depiction of Facebook and Twitter feeds or ethno-religious human terrain maps to be the sum total of socio-cultural analysis. In fact, this is but a very small part of the type of socio-cultural analysis available to the IC, but it can be an insightful component if properly utilized.

### **1.1.3 Integrating SCA within the conflict continuum**

To proactively build a social radar capable of sensing important impacts on populations and political systems like the ones above, it is first necessary to conceptualize how the IC can come to know them, particularly in the coming era of constrained budgets. Unlike state-centric analysis that is often reduced to quantitative metrics, such as GDP or mechanized infantry battalions, SCA requires deep, qualitative understanding about populations. Though such a task seems daunting at first, the Conflict Continuum below illustrates how the IC can inexpensively and proactively integrate SCA with traditional collection and analysis.

Prior to conflict, or left of bang, the IC has a great deal of access to various information sources. The universe of information sources include partner nations, academia, private sector companies, and social media, all of which often enjoy unfettered access to the population and generate information about it as a normal activity. These information sources can provide a wealth of information enabling analysts to develop base line assessments of populations, cultures, behaviors, and social narratives.

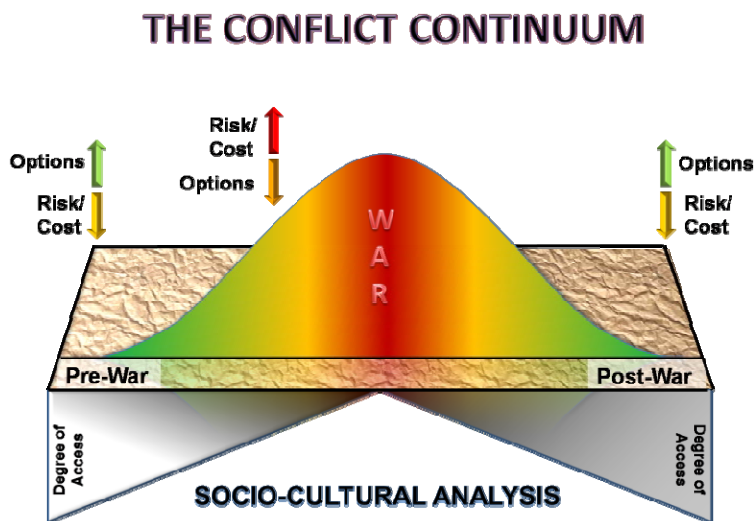


Figure 1. Conflict continuum.

When SCA methodologies and techniques are applied, strategic indications and warning can be derived from deviations in the baseline. These deviations can therefore inform military and political decision makers of possible uprisings or conflicts so they can be avoided. At this stage in the conflict continuum, deeper socio-cultural understanding results in a broader range of policy options available to the nation and its allies to prevent conflict.

As tensions rise and move toward conflict, the potential for violence increases the risk and cost of available responses while constraining policy options and access to information. By conducting SCA in Phase 0 and having a baseline, the IC will be able to inform military planners of potential threats and recommend sound policy options consistent with the population's worldview and attitudes. Such an approach puts policy and national interests more in line with the needs of the population to generate common, achievable outcomes. This can prevent poor decisions based on a lack of information and understanding of social dynamics.

As conflict concludes, reconstituting a sustainable, legitimate polity becomes more likely if the new institutions of state reflect the values, norms, and organizing principles of the population. In addition, reduced violence results in greater access to the population through NGOs and humanitarian efforts. This will allow the IC to re-establish base line understandings of the population in the new context. This re-established baseline allows the

IC to develop realistic recommendations informing actions to include: forming a government, humanitarian assistance, reconstruction efforts, infrastructure development, reintegration and reconciliation programs, and establishing military and police forces. These initiatives are extraordinarily complex, so the more data and knowledge that are available before a conflict, the more likely the right questions and interests will be addressed after conflict.

Commander USSOCOM, Adm. William H. McRaven, whose forces must be culturally attuned in the fight against extremists, recently stated, “Clearly, we need to continue to improve our understanding and respect for other cultures, improve our language capability and cultivate our ability to build relationships...”<sup>1</sup> Hard lessons over the past decade demonstrate the costs associated with building government institutions that fail to coincide with and take into account the population’s ontology (worldview, identity, norms, and narratives). As ADM McRaven notes, “Enduring success is achieved by proper application of indirect operations, with an emphasis in building partner-nation capacity and mitigating the conditions that make populations susceptible to extremist ideologies.”<sup>2</sup> But knowing when, where, how, and why to apply that influence cannot occur in the midst of conflict without resulting in significant errors. The IC can organize its resources and processes to ingest SCA into intelligence with the right framework.

#### *1.1.3.1 Integrating SCA through the Reconnaissance, Surveillance, and Intelligence (RSI)*<sup>3</sup>

RSI is a concept or paradigm for incorporating existing socio-cultural analysis resources into the intelligence process. In contrast to Intelligence, Surveillance, and Reconnaissance (ISR), which is generally perishable in nature (find, fix, finish), RSI suggests that a long-term research perspective is necessary for learning about populations (understand, analyze, engage). As populations are, under normal conditions, easily discoverable and available, national, international, allied, and private sector resources can come to know them at relatively low cost. Moreover, knowledge about

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1 Q&A with Admiral William H. McRaven. Special Warfare. Vol. 25, #2 (April-May 2012), 11.  
<http://www.soc.mil/swcs/swmag/archive/SW2502/SW2502QAAdmiralWilliamMcRaven.html>

2 Q&A with Admiral William H. McRaven. Special Warfare. Vol. 25, #2 (April-May 2012), 10.  
<http://www.soc.mil/swcs/swmag/archive/SW2502/SW2502QAAdmiralWilliamMcRaven.html>

3 Puls, Matthew and David C. Ellis. “Socio-Cultural ISR for Counterinsurgency and Stability Operations.” USSOCOM JCSOC: SCA Section Concept Paper (July 21, 2011).



populations has a long shelf life, given the fact that cultures, norms, and values change only gradually over time.

In the notional RSI process, the Reconnaissance phase is dedicated to understanding the world as seen, experienced, valued, and practiced by the population. Long-term Reconnaissance allows a sense of what is “normal” to be assessed for a population. During the Surveillance phase, changes in the baseline can be detected through a multitude of social science methods. When the changes are determined to merit further attention, Intelligence activity can begin to clarify what the changes indicate, determine whether a threat appears likely, and suggest how national assets might possibly shape events.

As the Conflict Continuum illustrates, the lowest costs and greatest opportunities associated with generating knowledge about populations occur well before conflict or tensions rise. The Reconnaissance phase fits perfectly with this perspective, but it requires integrating professional population researchers into the information collection process. Using non-traditional collections and analysis avenues, like academia, polling, census data, international marketing firms, and others, it is possible to generate the baseline understanding of a population, especially in Phase 0 environments. Social scientists will be particularly important, given their innate desire and skill sets. The IC will have to employ its own professionals to ask the right questions and translate the professional jargon into digestible intelligence.

The RSI paradigm provides the IC with a means of conceptualizing how to efficiently integrate population-centric information into the intelligence process. It also suggests the types of personnel and relationships that will need to be cultivated in order to address new threats. With a deeper understanding about populations, the IC will be able, during the Surveillance and Intelligence phases, to more accurately analyze how contemporary threats will likely impact populations and identify means for counteracting them when they are potentially harmful. But it begins before threats manifest with a robust Reconnaissance capability.

“We are entering an era marked by pace, scope and complexity of change that will challenge the minds and resources of the Defense Intelligence Enterprise.” James R. Clapper, Director of National Intelligence

#### **1.1.4 Conclusion**

Socio-Cultural Analysis is now an indispensable component of intelligence, and the IC can improve upon its already impressive gains. The qualified character of sovereignty in many countries is rendering inadequate the IC's traditional mechanisms and processes for developing information on populations and non-state actors. The task ahead, therefore, is to develop the social radar to warn policy makers of and inform them how to keep potential crises left of bang.

Because of looming budget constraints, some in the IC believe it is time to focus on core competencies, while others believe it is time for a paradigm shift to effectively address the complexities of globalization. These perspectives are not mutually exclusive; rather, the objective is to integrate those scholarly and investigative assets with the expertise and skill sets to understand cultures and populations into the overall intelligence process. An intelligence enterprise that fails to adapt to the qualified nature of state sovereignty cannot generate the personnel, expertise, and processes to comprehend the problems ahead.

The IC must develop and mature innovative capabilities that address the challenges of this new threat environment to provide non-linear, holistic intelligence to decision makers and advance its analytic tradecraft. The social sciences, international marketing companies, polling firms, and others possess the data, knowledge, and expertise on foreign populations that the intelligence community lacks. By harnessing these assets more effectively and leveraging the capabilities of our allies, the IC can, in a relatively short period, come to understand the key socio-cultural constructs of relevant populations. By delving into critical questions, pathways, and indicators for those key, major, and minor countries relevant to U.S. national security, the intelligence community can advance its own analytic transformation, deliver more powerful insights to customers, and better avoid strategic surprise. Doing so will enable more effective diplomacy and better focused military activity to keep many budding conflicts left of bang or more adeptly navigate the reconstitution of societies torn by conflict and/or natural disaster.

## 1.2 Introduction to populations in their environments

*Dr. Charles R. Ehlschlaeger*

The overriding goal of this White Volume is how to best understand a changing population and environment so that we can respond to both short- and long-term national security challenges. This first section explores issues relevant to understanding populations, both today and years from now, and the stability indicators that will help to monitor insecurity and prevent potential crises around the world. While the U.S. Government has long monitored the stability of other governments, it does not have a long history of extensively monitoring other populations except when U.S. troops are deployed overseas. For example, the South Vietnamese military and the U.S. Army extensively measured and monitored populations in rural areas prone to Vietcong activities, reducing violence. Monitoring populations using human terrain teams or U.S. and Partner Nation military units, however, is both risky and labor intensive. Thus, existing population monitoring methodologies in Afghanistan, Iraq, and 1970's Vietnam cannot be performed across the entire globe due to their costs. It is necessary to change the way the U. S. Government collects, integrates, and disseminates population information to achieve short- and long-term national security goals.

The authors chosen to write parts in this section represent practitioners and researchers with extensive experience in their Areas of Focus or research fields. The papers are organized with topics focusing on population-centric models early in the section. The later papers discuss challenges to collecting the data necessary to drive these and similar models. The following brief description of these papers provides an overview but cannot possibly do justice to the invaluable information contained within.

The section begins with Dr. Hendrix's presentation of a nation-wide population fragility analysis using United Nations' metrics. Dr. Hendrix provides an excellent description of why population-centric measures are important and then demonstrates the logic behind a straightforward three-variable model. While Dr. Hendrix describes such analysis at national scales, this model could also be used at regional or local scales with additional data collection. Also, trend analysis and forecasting on the input variables would provide short- and maybe long-term predictions of population fragility.

Dr. Browne, Mr. Lee, and Mr. Knudson present a PACOM perspective on socio-cultural analytics. Recognizing that there is no one-size-fits-all approach, PACOM developed a structured analytic approach for collecting population information. Their hierarchical structured analytic approach eases the understanding of the complex nature of socio-cultural information. Finally, PACOM demonstrates its geospatial approach with a case study illustrating a neighborhood-scale risk analysis.

Drs. Astorino-Courtois and Bragg discuss a repeatable modeling approach from the U.S. National Security Institute for assessing the utility of preventative stability operations. Their paper has an excellent discussion of state stability condensing U.S. military doctrine and relevant literature. Their paper demonstrates their general State Stability Model (STAM), a dynamic system with feedback loops based on the appropriate doctrine and research modeling the durability of state stability. It finishes by presenting the model operationalized for Pakistan.

Mr. Busch and Ms. McLean, from EUCOM, discuss the Deep Futures dive into understanding the future of counterinsurgency and stability operations. This paper discusses the divide between classic COCOM intelligence gathered information and population-centric understanding, which they call the “noise floor.” Operational and tactical population-centric information is “below the noise floor” and collected by “hunter-gatherers” in the AOI where such units operate. Deep Futures uses a knowledge intensive business services model to create three types of products called QuickLooks, inSightlines, and DeepLooks, depending on the needs of the clients.

Mr. Leetaru and Dr. Olcott<sup>1</sup> present an in depth discussion on the evolution of open source intelligence from World War II to the near future, focusing on media monitoring. Media monitoring, especially that focusing on social media, is rapidly changing and adapting to all citizens of the world in ways difficult to predict. Leetaru and Olcott’s research in this domain is presented clearly, demonstrating how the IC and other communities are using social media to collect large amounts of data previously unavailable. Their paper’s discussion on the changing IC mimics the changes by operational planners we expect to see over the coming years: moving

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<sup>1</sup> Anthony Olcott is the author of *Open Source Intelligence in a Networked World*, Continuum International Publishing, London, 2012

from human-centric perspectives toward the goal of augmenting subject matter experts with reliable model results leveraging “big data.”

The final paper in this section by Drs. Ehlschlaeger and Dimperio, with Mr. Burkhalter, Ms. Drigo, Mr. Amir-ghessemi, and Mr. Edwards describes the challenges of measuring populations and social groups in a way that will allow models to represent socio-cultural knowledge and state stability to the fidelity required by COCOM’s operational needs. The paper argues that all forms of data must be integrated into a single data system that can easily input this information into both simulation models and easy to understand maps that can be updated as rapidly as needed. All data must be seamlessly accessible in forms consumable by subject matter experts. The paper discusses early research efforts by the Engineer Research and Development Center in this direction.

### **1.3 A population centric view of social, political and economic indicators of a “fragile state”<sup>1</sup>**

*Dr. Cullen S. Hendrix*

Based on research conducted by the Political Instability Task Force, the Human Security Report Project, and various research teams at leading universities in the United States and Europe, this chapter proposes a three-pronged approach to assessing state fragility from a human security perspective. This perspective focuses attention on outcome indicators of 1) human health and educational opportunities, 2) gender equality, and 3) civil liberties in order to assess whether or not states are relatively secure and able to meet the basic needs of their populations. Moreover, the chapter proposes looking at a country’s performance on these outcome indicators relative to its wealth as a good metric for political capacity. A population-centric approach does not trade off against core security concerns: countries that perform better on these population-centric measures are much less likely to experience state failure and civil strife. The national security perspective on state fragility is mostly concerned with a state’s ability to deter or defeat armed challenges to its authority and its vital national interests. These challenges may come from abroad – in the form of interstate war or transnational terrorism – or they may come from within, via rebels and/or terrorist violence. In contrast, a population-centric perspec-

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<sup>1</sup> This material is based upon work supported by, or in part by, the U. S. Army Research Laboratory and the U. S. Army Research Office under contract/grant number W911NF-09-1-0077. I thank Kelly Wurtz, Idean Salehyan, Philip Roessler, and Sarah M. Glaser for helpful comments and suggestions.

tive on security focuses our attention on the living conditions of the people that inhabit states, and whether the state is providing an environment in which people can enjoy long, healthy, and productive lives free from persecution for their political and religious beliefs or their ethnic identities. This perspective is gleaned from recent research conducted by diverse research groups ranging from CIA-funded Political Instability Task Force to the United Nations Development Program and WomanSTATS projects, as well as my own research on state capacity and work with the program on Climate Change and African Political Stability (CCAPS), a Department of Defense-funded research program based at the University of Texas–Austin. The notion of human, or population centric, security is not new. That human beings are endowed with the unalienable rights to life, liberty and the pursuit of happiness is enshrined in the Declaration of Independence. Despite this emphasis, our understanding of what constitutes a fragile state still focuses much more on the formal aspects of state authority—the military, its monopoly on the use of force within its borders, and its economic resources—than on the quality of life of the people that inhabit its territory. Since the 1990s, however, social scientists from a wide range of disciplines have recognized the importance of conceptualizing security at the individual, household, or community level. What would a population-centric view of state fragility look like? The 1990 *Human Development Report* is a landmark document in defining the goals of development in terms of human outcomes. “The basic objective of development is to create an enabling environment for people to enjoy long, healthy, and creative lives,” it contends. “This may appear to be a simple truth. But it is often forgotten in the immediate concern with the accumulation of commodities and financial wealth.”<sup>1</sup> Security is more than money—it is access to opportunities and freedom from fear for one’s personal safety.

One can conceive of a population-centric perspective on state fragility in terms of answers to the following questions. These questions, or ones similar to them, are at the heart of parents’ concerns for their children the world over:

- Will I bury my children, or will my children bury me?
- Will my children—both boys and girls—be able to achieve their potential?

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<sup>1</sup> United Nations Development Programme, *Human Development Report 1990*, (New York: Oxford University Press, 1990).

- Will my children be persecuted for who they are, their religious beliefs, or their political views?

The first regards health outcomes—whether people’s basic nutritional, health, and physical security needs are met. The second regards education and gender equality—whether men and women share equally in the opportunity to achieve their full potential. The third regards civil liberties and physical integrity rights, or the freedom to live according to their beliefs and conscience and be free from interference from their government.

The remainder of this chapter proceeds as follows. First, I discuss the rationale for a population centric definition of state security, and demonstrate how the most conventional measure of state capacity—economic output—can paint a misleading picture. Second, I address some measures that capture the three distinct elements of population centric security: human development, gender equality, and human freedom. Lastly, I present a synthesis of these perspectives using a global sample of countries based on their performance on these three indicators, and discuss the relationship between fragile populations and emerging threats to U.S. national security.

### **1.3.1 Why human security?**

The human security paradigm defines security in terms of the individual or group, rather than in terms of the state. Defining security in terms of the individual, rather than the state, encourages investments in health care and education that promote long-term economic development and peace and stability—which are the ostensible goals of state security. Thankfully, investments in improving the human condition provide dividends in the form of state security: when governments are able to keep infant mortality rates—the number of children who die before their first birthday per 1000 live births—below the world median, they have very low likelihoods of experiencing state failure. If infant mortality rates are above the world median, that likelihood increases dramatically, even if the state is comparatively wealthy and democratic.<sup>1</sup> Human security is the foundation of state security.

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<sup>1</sup> Gary King and Langche Zeng, “Improving Forecasts of State Failure,” *World Politics* (2001) 53 (4): 623-658.

Unfortunately, the converse is not always true. The traditional state security paradigm fails to recognize that governments often perpetrate violence against their own populations in the pursuit of national security. Apart from the World Wars, many of the most horrific episodes of the 20<sup>th</sup> century—the Holocaust, Stalin’s Great Purge, the Khmer Rouge’s rule in Cambodia—were *politicides*, episodes of mass violence targeting groups who were perceived as threatening to the security of their own government. In the 21<sup>st</sup> century, politicides are becoming more infrequent; but one need look no further than Syrian President Bashar al-Assad’s decision to shell unarmed Syrian protesters as evidence that governments are often tempted to trade their own security for that of their people.

### 1.3.2 Measuring population centric security

Because material wealth can be used to purchase arms and support large armies, state strength is often equated to the wealth of the society it governs and its ability to access that wealth, i.e., to tax. On average, more wealthy societies are also societies that perform better on population-centric measures of state capacity. More wealthy societies have more resources to invest in education, health care, and effective policing of violence. However, material wealth—often measured as gross national income (GNI) per capita—can give false impressions of societal wellbeing. In terms of material wealth, Equatorial Guinea, a small, oil-rich African state, is on par with European Union member state Poland. In terms of human wellbeing, however, there is no comparison: Equatorial Guinea’s infant mortality is almost 12 times higher than Poland’s; its poverty ratio nearly eight. Moreover, Poland’s citizens enjoy active participation in a democratic society and freedom of conscience; Equatorial Guinea’s do not. Wealth, it is clear, does not convey the whole story. This is because there are multiple paths to economic prosperity, and not all flow through state investments in developing human capacity. One obvious example is oil wealth—states that are rich in oil tend to have less well-developed bureaucratic institutions and perform less well on human development indicators than their GNIs per capita would suggest.

	GNI per capita	Infant Mortality	Poverty Ratio (%)	FH Civ. Lib.
Equatorial Guinea	\$17,608	75.2	76.8	Not free
Poland	\$17,451	6.4	10.6	Free



### 1.3.3 A three-pronged approach to population-centric state fragility

This section proposes a three-pronged approach to measuring population-centric state fragility. This approach is conceptualized in Figure 2, and consists of human development (how healthy and well-educated is the population?), gender equality (how equally do the sexes share in governing, working, and access to education and health care?), and human freedom (whether or not citizens are persecuted for their identity or their beliefs).

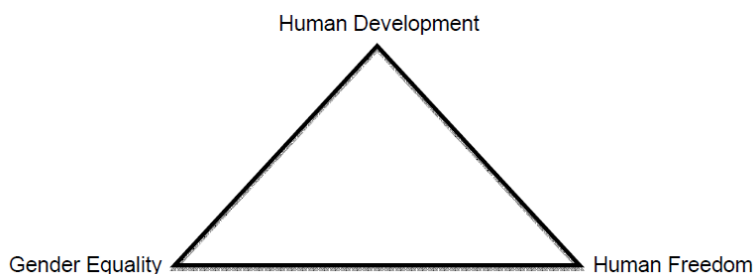


Figure 2, A population-centric approach to state fragility.

Each of these concepts is highly open to interpretation and therefore subject to debate: for instance, freedom from what? However, there is some general consensus among development and human security scholars over useful and easily available metrics for assessing a country's performance along these dimensions.

#### 1.3.3.1 Human development

The Human Development Index (HDI) is a general indicator of health and educational outcomes, and is the best single yardstick for assessing the degree to which persons in a society will live long and productive lives. It combines data on average life expectancy (a general measure of health outcomes) and average number of years spent in school by 25-year-olds and an average expected count of years of schooling that a 5-year-old child will spend in school over their lifetime (a general measure of educational opportunities). Income (measured as Gross National Income per capita) may or may not be included, though its inclusion has little impact on country rankings on the HDI measure. Based on this measure, the United Nations Development Program (UNDP) categorizes countries as having "Very High," "High," "Medium," or "Low" human development (see Appendix A). Generally, more wealthy countries perform better on the HDI. However, at a given level of national income, there are still large gaps in performance on the HDI. Some countries, such as Liberia, Zimbabwe, and Cuba,

do considerably more—providing basic health care and educational access—with less. Others, such as Angola, Burkina Faso, and Chad, underperform, given their levels of national income. The list of over- and underperformers is presented in Appendix B. The capacity ratio should not be used as a measure of state capacity in its own right, but rather as a means of comparing countries that have similar levels of economic development and performance on the HDI.

Any time we simplify a concept like human security or state fragility to a single variable, or even a handful of variables, however, the devil is truly in the details—in two concrete ways. First, this model assumes that one variable (human development) is a function of national income and random error—that is, we know that income drives performance in human development, but there are other, random factors at play as well. However, many of these drivers are not truly random. Oil-rich economies tend to underperform relative to their level of income because oil is a) very valuable and widely traded, and b) it can be exploited with small, often imported workforces, which lessens pressures on governments to provide health- and education-improving services to society. Oil dependence also tends to depress gender equality, which, as the next section discusses, poses its own security problems. Second, these country-level measures—all the variables discussed herein are collected at the country-year level—mask massive variation in human security at the sub-national level. The view from the capital may be quite different from the view in the hinterlands, and as the statistics on health outcomes in different neighborhoods in American cities can attest, even compact urban environments can be characterized by wide disparities in human security.

#### 1.3.3.2 Gender equality

Despite the fact that women make up half the population of any society, their degree of equality and empowerment tells us far more about the overall prospects for peace and stability in that country. In a recently released book, *Sex and World Peace*, Valerie Hudson, George H.W. Bush Professor of Government and Public Service at Texas A&M University, and her collaborators demonstrate a shocking finding: the larger the gender gap between the treatment of men and women in a society, the more likely a country is to be involved in intra- and interstate conflict, to initiate wars against its neighbors, and to resort to higher levels of violence against

members of their own society.<sup>1</sup> Highly gender-unequal democracies, in fact, are no less fragile than nondemocratic states. Gender equality, thus, is fundamental to both human and state security.

The UNDP focuses attention on three elements of gender inequality: reproductive health, empowerment, and labor participation. Regarding reproductive health, the UNDP assesses how frequent mothers die during childbirth and the rates of teen pregnancy in a society. Empowerment is measured by the degree of female representation in the legislature and educational attainment, two factors that affect the degree to which women participate in governance and have the capability to harness their innate capacity. Finally, female participation in the labor market gives a good snapshot as to whether women and men alike enjoy economic opportunity. The UNDP uses these three measures to create the *Gender Inequality Index* (GII), a composite measure that captures women's rights and empowerment. The GII ranges from relative equality—Sweden, the Netherlands, and Denmark—to stark inequality: Yemen, Chad, and Niger. Like HDI, GII generally tracks with income, with wealthier countries being more gender equal. The biggest outliers—countries that are significantly more gender unequal than their income would suggest—are the Gulf states, Qatar, Saudi Arabia, and the United Arab Emirates, and, perhaps surprisingly, the U.S. The U.S. ranks 47<sup>th</sup> in the world in gender equality, putting it behind countries like Tunisia, China, and even Kuwait.

#### 1.3.3.3 Human freedom

A healthy, long-lived population where women and men share in opportunities equally can mark a society, but that society nevertheless may not be secure. The third element of a population-centric perspective on security concerns freedom from persecution and violence for one's religious, ethnic, or political identities or beliefs. Social scientists have developed several indicators that capture different elements of human freedom. The first is the *CIRI Physical Integrity Index*, measures "the rights not to be tortured, summarily executed, disappeared, or imprisoned for political beliefs."<sup>2</sup> The index ranges from 0 (no government respect for these rights) to 8 (full government respect for these rights). In a similar vein, the *Political Terror*

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1 Valerie Hudson, Bonnie Ballif-Spanvill, Mary Caprioli, and Chad F. Emmett, *Sex and World Peace*, (New York: Columbia University Press, 2012).

2 David L. Cingranelli and David L. Richards, "The Cingranelli and Richards (CIRI) Human Rights Data Project," *Human Rights Quarterly* 32(2): 395-418.

*Scale* is another widely used index that measures extrajudicial killing, torture or similar physical abuse, disappearances, and political imprisonment, committed by the state or its agents. The scale ranges from 5 (“Terror has expanded to the whole population. The leaders of these societies place no limits on the means or thoroughness with which they pursue personal or ideological goals”) to 1 (“Countries under a secure rule of law, people are not imprisoned for their views, and torture is rare or exceptional. Political murders are extremely rare”).<sup>1</sup> These indicators measure similar underlying concepts and rely on similar data sources (reports by Amnesty International and the U.S. State Department), and unsurprisingly, they are highly correlated.

The third, Freedom House’s *Civil Liberties Index*, measures “freedoms of expression and belief, associational and organizational rights, rule of law, and personal autonomy without interference from the state.”<sup>2</sup> The index ranges from 1 (no violations) to 7 (extreme repression marked by the absence of civil liberties). This measure comes closest to the civil ideal of personal freedom—freedom of conscience and freedom of individual belief and expression. Countries that perform better on these indicators are undoubtedly less fragile than countries that engage in harsh repression of their citizens. However, civil liberties and political democracy—a closely related concept—are not necessarily guarantors of governance or policy outcomes that are entirely consistent with U.S. national security interests. As we have seen with the Arab Spring, respect for civil liberties and an opening up of the public sphere may allow more room for anti-Western groups to voice their preferences. Repression of these views, however, is one of the main reasons that their proponents adopt such extreme positions.

#### **1.3.4 Combining human development, gender equality, and human freedom**

Figure 3 maps the three distinct dimensions of population-centric state fragility—human development, gender equality, and human freedom—into a three dimensional space. The three axes represent a country’s score on the HDI (vertical axis), GII (right axis), and the Civil Liberties Index (left axis). The purple plane defines the “average” relationship among these

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1 Reed M. Wood and Mark Gibney, “The Political Terror Scale (PTS): A Re-introduction and a Comparison to CIRI,” *Human Rights Quarterly* 32(2): 367-400.

2 Freedom House, *Freedom in the World*, (Freedom House: 2010).

three variables, with blue lines indicating countries that are “above average” and red lines those that are “below average.” Values clustered in the top-rear corner of the cube represent high values on all three dimensions.

As many would guess, the wealthy democracies of Western Europe and North America populate this sector. In the opposite corner (near-lower) are the states most commonly defined as failed or failing: Republic of Sudan, Afghanistan, Yemen, Sierra Leone, Haiti, and the like. These states combine poor health outcomes, gender inequality, and a lack of civil liberties. Other countries are notable. Cuba delivers surprisingly good performance on the HDI, but its relative gender inequality and lack of civil liberties render its population insecure; China has relatively strong performance on gender equality but lags behind somewhat in HDI and civil liberties. However, given China’s rapid economic development, its performance on the HDI is likely to increase dramatically in the near term. The U.S. combines excellent performance on the HDI and comparatively strong protections on civil liberties, but lags behind the other Western democracies in gender equality.

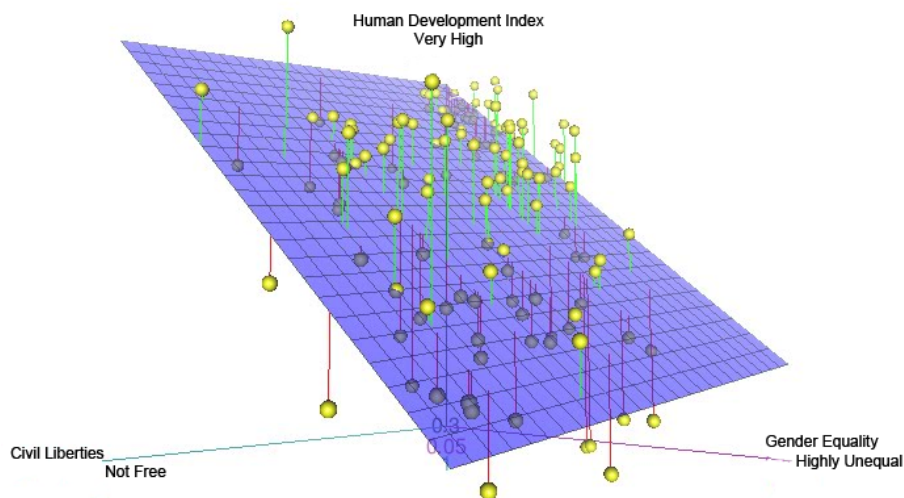


Figure 3. Mapping human development, gender equality, and human freedom in 2011. The plot uses data on the Human Development Index (UNDP 2011), Gender Inequality Index (UNDP 2011), and the Freedom House Civil Liberties data (Freedom House 2011) to render a multi-dimensional picture of population-centric security.

### 1.3.5 Fragile populations and U.S. national interests

This chapter has reframed the discussion of security in population-centric terms, and argues that focusing on human development, gender equality,

and human freedom provides a better window into the security of societies than either economic or military data could provide. In conclusion, two points merit attention. First, while this perspective reframes the debate, the list of most fragile states it returns—Chad, Niger, the DRC, Afghanistan, etc.—is similar to that arrived at by conventional economic and military measures. The population-centric approach, however, improves on looking at purely economic indicators by highlighting the fact that significant progress can be made toward improving human security even at low levels of development. Some more capable states do more with less. Identifying the states that do less with more—provide worse outcomes than their income level would suggest—indicates a failed compact between state and society. These states cannot be viewed as strong, regardless of their economic affluence.

Second, a population-centric approach does not trade off against core security concerns. Social science research indicates that countries that perform better on these population-centric measures are much less likely to experience state failure and civil strife. The security of the people—men and women alike—is a vital component of state security, and healthy, vibrant, and thriving societies are those most immune to extremist political ideologies.

## **1.4 Analytic methodologies, information fusion, and data acquisition**

*Mr. David A. Browne, Mr. Joseph T. Lee, Mr. Eric A. Knudson*

### **1.4.1 Background and introduction**

Eight years into the war in Afghanistan, the U.S. Intelligence Community is only marginally relevant... the vast intelligence apparatus is unable to answer fundamental questions about the environment... ignorant of local economics and landowners, hazy about who the powerbrokers are and how they might be influenced, incurious about the correlation between various development projects and levels of cooperation among villagers, and disengaged from people in the best position to provide answers...<sup>1</sup>

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<sup>1</sup> MG Michael Flynn, CAPT Matt Pottigner, Mr. Paul Batchelor. Fixing Intel: A Blueprint for Making Intelligence Relevant in Afghanistan.

U.S. Pacific Command (USPACOM) operates in one of the most complex areas of responsibility (AOR) in military history. PACOM's span of responsibility encompasses over 50% of the earth's surface, and includes 36 countries that possess almost 60% of the world's population. Within the countries in the AOR, many hundreds of semi-autonomous regions, distinct ethnic or cultural groups, and disputed regions combine to create a highly complex socio-cultural environment. With the rise of Asia's importance in the global economy and the U.S. strategic geopolitical re-balancing towards this region, the importance of PACOM's Socio-Cultural Analysis (SCA) capability has never been greater.

While many aspects of SCA are robust, one of the most challenging aspects of SCA occurs at the operational level in which commanders and planners require an advanced understanding of human geography and its impact on their missions. For example, operations to mitigate Asymmetric Threats, Economic Insecurity and Humanitarian Crises require knowledge of both the threats and the environments that sustains them. SCA and the broader analytic community struggle to meet these needs sufficiently. Their analysis of the social landscape includes the impact of socio-economic, political, ideological, and environmental factors bearing on local governments, host populations, and societal centers of gravity. As such it requires detailed and complex data sets with short "shelf-lives" that quickly become cost prohibitive. The acquisition and management of considerable amounts of data must be controlled to minimize resource requirements, but this control decreases the utility and application of these data sets. Once stability operations are underway, U.S. and partner personnel must have a ready means of accessing and sharing accurate information regarding the operational environment and the individuals with whom they are engaged in order to ensure effective joint operations. Unfortunately, ad hoc or incomplete means of sharing this vital information are currently the primary solutions.

In an attempt to begin addressing aspects of the challenges posed by the complexity of this environment, PACOM SCA analysts have developed a structured analytic methodology and data acquisition approach. In its initial employment phase, this methodology has received substantial interest and validation from the PACOM personnel who have interacted with it. While much work remains to be done to validate, refine, and tailor the approach, the paper below outlines the progress achieved thus far, as well as

key challenges that must be addressed to achieve the benefit the Command requires.

#### 1.4.2 Structured analytic approach

To provide a rigorous, auditable, repeatable analytic approach, PACOM SCA is creating a series of methodologies that guide the Command's socio-cultural analytic activities. The specific methodologies are not an attempt to provide a one-size-fits-all approach to every socio-cultural analytic challenge. Instead, the approaches are borne out of several well-established methodologies and best practices, resulting in a PACOM SCA-specific solution that provides an understanding of the human geography landscape. As a result, it includes a picture of risk, resource alignment, and capacity building.

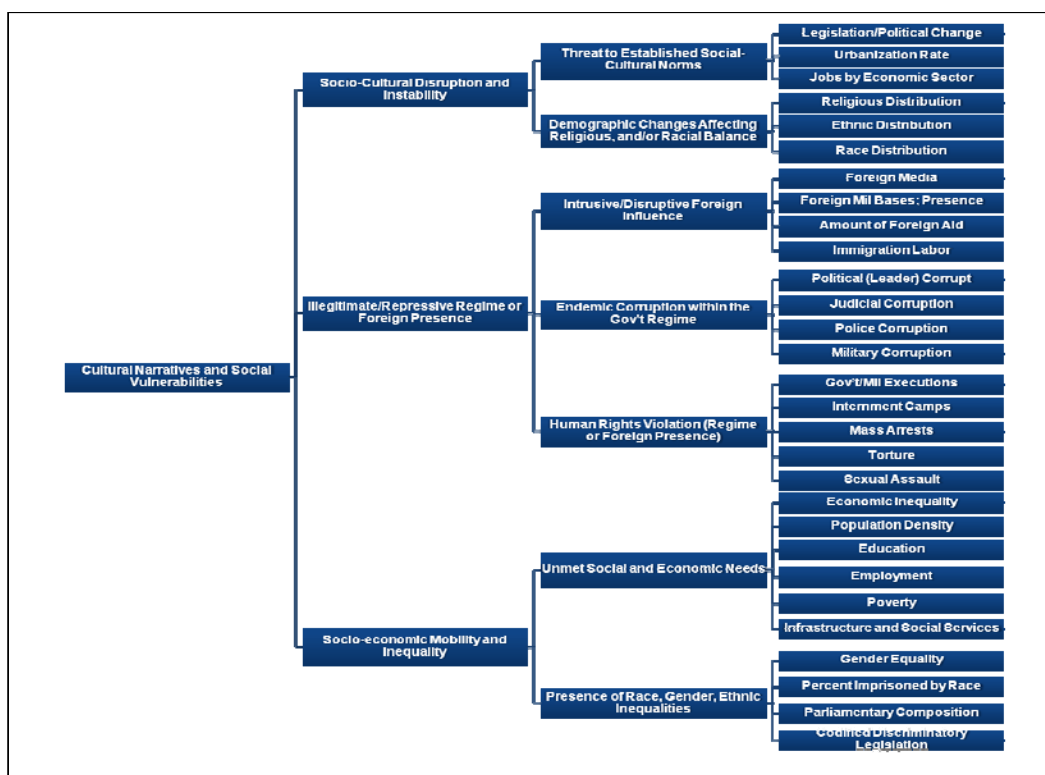


Figure 4. Variable tree "snapshot."

PACOM SCA's attempt to develop a systematic approach starts with a framework that identifies the relevant conditions and factors that individually address topics such as Asymmetric Threats, Economic Insecurity or Humanitarian Crises. Each theme is broken down, or unpacked, into a multi-layered sequence that defines the variable sub-sets needed to address the problem and tell a holistic analytic story. Stated differently, the



PACOM SCA methodology deconstructs issues/threats into crucial building blocks that can be individually or collectively analyzed. This is depicted through a taxonomy or variable tree that is essentially a structure that looks at the threat/issue and socio-cultural dynamics of a problem set and allows analysts to validate or revisit analytic judgments by showing traceability and nesting between variable layers. The variable tree methodology is depicted in Figure 4.

A structured framework provides:

- **Transparency**—through a better understanding of how the analyst derived his or her analytic findings and recommendations.
- **Standardization**—that can be used across regions and countries. Standardization provides analytic symmetry, especially if multiple analysts are conducting SCA on different countries. This is especially important with SCA disciplines as they are more “art” than “science.” Following a standardized approach enables better peer review and forces SCA to move in the direction of repeatability.
- **Prioritization**—by identifying the variables that are most important to deriving context and meaning. This is particularly useful, as SCA data is often elusive and can be expensive to obtain. By enabling prioritization of key sub-elements, scarce resources can better be marshaled against high impact acquisition targets.

Like most analytic methodologies, the PACOM SCA variable tree methodology depends on access to high quality data. Socio-cultural analysts (including geospatial personnel) require sufficient information to conduct comprehensive and predictive analysis that aids in generating the insights USG decision-makers demand. Open source information, including socio-cultural-related data, is an increasingly important means of identifying insights for analytic production. However, sifting through and acquiring the relevant SCA data is not easily done, as open source data are proliferating at an ever increasing rate, and finding useful information is often elusive. Moreover, in many ways, SCA data are even more challenging to acquire than those of traditional disciplines, as many of the elements within SCA, including culture, sociology, religion, socio-economic, and population perceptions, do not lend themselves to traditional collection mechanisms.

To begin the process of addressing these gaps, PACOM SCA has begun to utilize focused acquisition and engagement plans that drive the identifica-

tion and capture of required data. The acquisition plan complements the engagement plan and documents where data currently reside, while providing a comprehensive record of data gaps, mapped back to the variable tree factors. The engagement plan identifies those people and organizations that may have, or can assist in providing, the necessary data to answer the particular analytic issue. PACOM SCA has started to take initial steps in developing engagement plans for specific projects that incorporate and identify the full range of USG (Whole of Government), academia, industry, IGOs, and NGOs that could provide information necessary to address the analytic data gaps that analysts face. By coordinating with these individuals and organizations, the groundwork is being laid to foster rapid collaboration in the future and, ultimately, develop an information repository that can allow reuse of socio-cultural data by multiple entities.

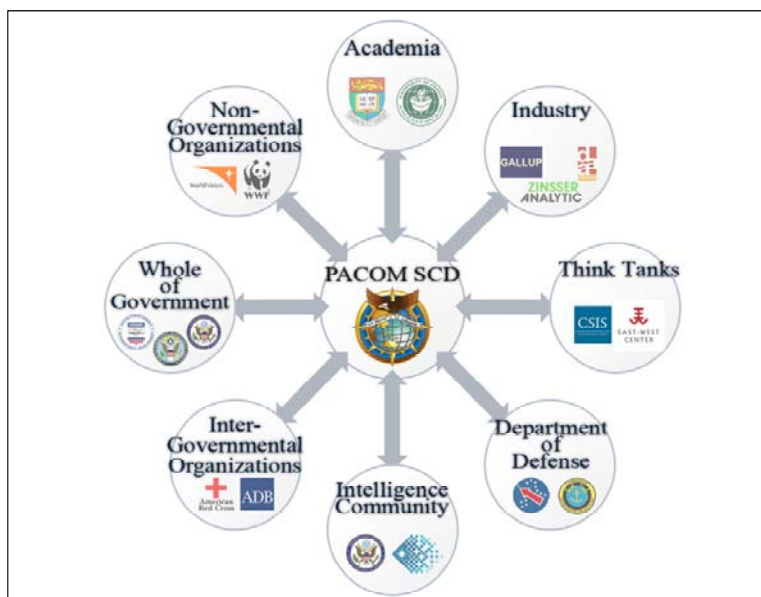


Figure 5. Whole of society.

These are important components that can help analysts identify means and personnel to assist in satisfying the data requirements. PACOM SCA has found that many data gaps cannot be fulfilled via traditional Department of Defense (DoD) methods and has actively begun building connections with the non-DoD entities cited above. The data acquisition planning process has proved integral in providing more efficient and cost-effective methods to acquire necessary data. Three primary mechanisms are employed to address the data needs, including: 1) data discovery to process and exploit information held in existing repositories; 2) information shar-

ing with non-traditional partners within a community of interest; and, 3) active open source data gathering to develop new data.

### **1.4.3 Methodology in practice (case study)**

PACOM SCA was tasked with assessing the risks associated with countries in the region in order to enable planners and policymakers to better understand how Command resources could be prepared to assist the region. When first provided the task of assessing the situation in specific counties in the region, PACOM SCA began by identifying the known risk areas. In identifying these risk areas, the SCA team drew from established research and frameworks providing insights into the problem sets under examination. In the case of examining population and social vulnerability, for instance, the SCA team drew on extensive USAID research on the drivers of violent extremism,<sup>1</sup> including natural disasters, and also followed other best practices. Once the set of drivers was identified, the drivers were decomposed into key socio-cultural variables. In arriving at these variables, the SCA team identified an array of indicators ranging from societal, cultural, religious, economic and other factors that have been linked to population and social vulnerability. The indicators were taken from existing open source data and indices established by U.S. government agencies, host nation statistics bureaus, and international development agencies. Other socio-cultural factors came from a range of academic, NGO, and international sources. Following factor identification, available data relating to these factors was acquired to form the foundation of subsequent analysis.

Following the acquisition of relevant data, geospatial analysis was then possible through a variety of methods, including composite overlays of data down to a kilometer grid-square across regions of the country being examined. From this analysis, hotspots for risk were identified—typically in the form of areas that included the highest concentration of problematic indicators. For example, in assessing the propensity for at-risk populations, analysts found a highly concentrated presence of variables such as intimidation (represented by violent attacks, kidnappings, etc.), corruption reporting, unmet social and economic needs, and ungoverned terrain.

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<sup>1</sup>See: Denoeux, G. and Carter, L. (October 2009). Development Assistance and Counter-Extremism: A Guide to Programming. Document produced for the U.S. Agency for International Development (USAID), Bureau for Africa (USAID/AFR) by Management Systems International; Denoeux, G. and Carter, L. (February 2009). Guide to the Drivers of Violent Extremism. Document produced for USAID by Management Systems International.

The presence of these factors in one concentrated area resulted in that area being more highly rated for risk than sectors without such factors.

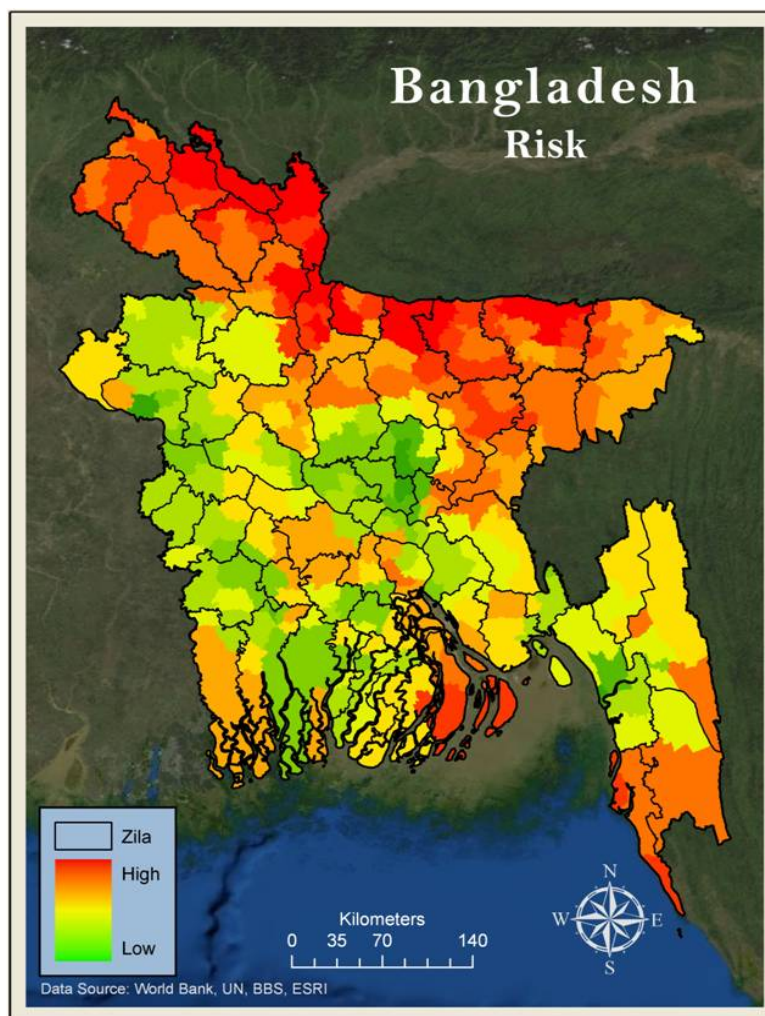


Figure 6. Illustrative Risk Map based on World Bank, UN, and Bureau of Statistics Data.

Once risk areas were identified, further analysis was performed on specific hot spots or risk areas. This included several approaches. One approach involved examining the specific geospatial indicators in the area identified to gain an understanding of what drove the risk. In assessing population and social risk, the composite geospatial analysis was deconstructed to highlight the specific causes of risk. Factors such as political, socio-economic, and ideological challenges were found to be highly correlated with population and social risk. The resulting analysis was translated into impact assessments. Ultimately, analyzing risk impact zones was important in determining the specific factors accounting for risk, and fore-

casting the negative effects or “impact” that might result from the presence of these adverse factors.

Next, risk capacity was assessed. Geospatial analysis was used to plot the development activities pertinent to Violent Extremism, Economic Insecurity, and Humanitarian Crisis problem sets. Initiatives of the U.S. government (i.e. USAID) and partner nations, intergovernmental organizations and development banks, NGOs, etc., were all evaluated. By plotting this information in space, decision-makers can quickly assess the alignment of capacity and resources to the risk so identified.

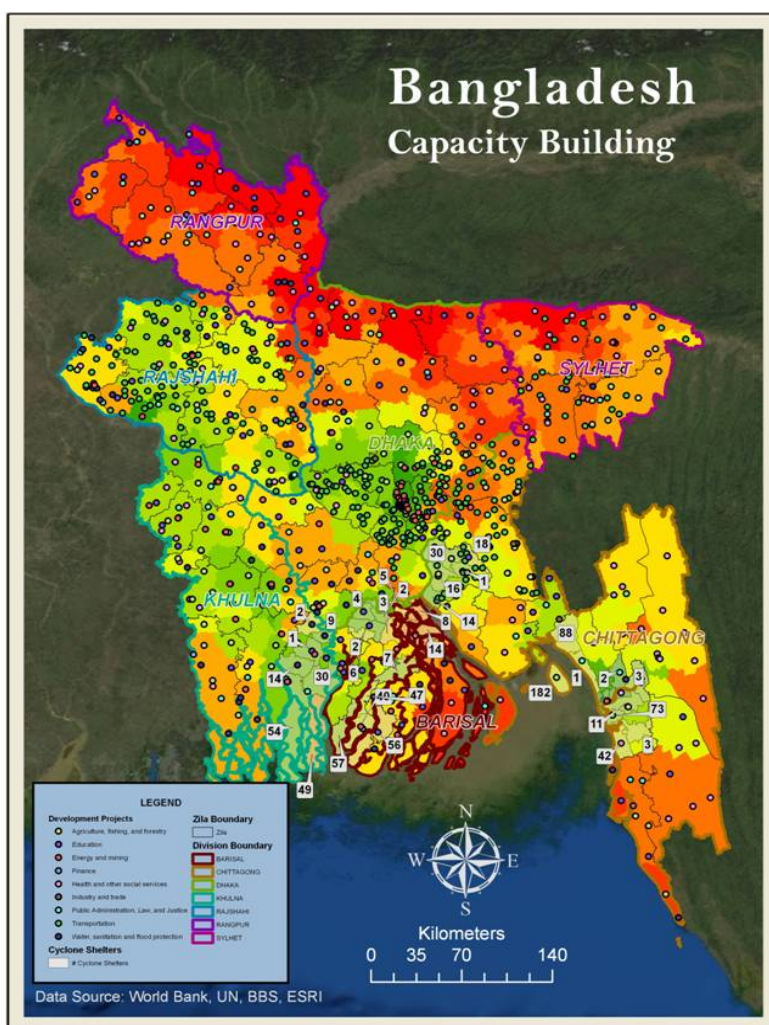


Figure 7. Illustrative Capacity Building Map (based on World Bank, UN and Bureau of Statistics Data).

Finally, the SCA analysts reviewed the findings of the previous steps, evaluated the areas identified as being at greatest risk, the factors accounting for said risk and the forecasted impact of these factors, and addressed the

current capacity and alignment of resources (or lack thereof) to the risk identified. Specific Bangladeshi assistance recommendations were then prioritized to the areas of highest risk, where capacity and resources are most limited, to address the underpinning factors responsible for them. Further, where areas of interest had already been identified—due to national priority, host-government granted access, agencies on the ground or another source—assistance needs were determined. Where weaknesses or deficiencies were identified, distinct advice and recommendations were generated down to the operational level. Importantly, frequent consultation with the operational agencies responsible for implementing assistance resulted in guidance that was most robust and applicable to interested parties.

#### **1.4.4 Conclusion**

Though Socio-Cultural Analysis is still in its nascent stages as a formal Department of Defense analytic discipline, its power and utility have become increasingly evident to warfighters, policy-makers, planners, and other decision-makers. The understanding and awareness gained by looking at problem sets through sociological and cultural lenses, across the entire range of SCA sub-disciplines, bears tremendous promise for improving Defense leaders' ability to make informed decisions. At U.S. Pacific Command, the application of SCA to a specific methodology has yielded initial positive results in helping to better understand the human geography landscape and drive Phase O shaping. This methodology has achieved significant initial benefit for Command stakeholders owing to its ability to provide specific insights where decision-makers previously had limited or incomplete information to draw upon. Specific examples, such as the power of assessing Violent Extremism, Economic Insecurity, and Humanitarian Crises, show that SCA has a lasting place in the Command's toolkit. Lessons learned have also emerged from the application of this SCA technique—namely, the dependence upon acquiring the correct information and need to partner with a wide cross section of government, academic, commercial, and non-profit organizations to maximize resources and situational awareness. While much work remains, the Command is increasingly positioned to capitalize upon SCA's capabilities to address key elements of the AOR's complexity and challenges.



## 1.5 Assessing state stability: Toward a repeatable approach to modeling states and their environments to support counter-instability planning

*Dr. Allison Astorino-Courtois and Dr. Belinda Bragg*

The daunting task that the DoD, U.S. agencies, and allied forces have been called to accomplish in Iraq and Afghanistan, especially in the most recent years, has demonstrated that reestablishing secure and stable conditions in fragile or failing states is a long-term and complex commitment, costly both in terms of lives and money. For the larger U.S. policy and defense communities, this experience has also highlighted a long-standing line of academic inquiry: Is it possible for an external actor to “create stability” in a state or region and, if so, what should be done to counter instability abroad before conditions degrade to the point where governments are on the brink of collapse or defeat?

In the U.S., the contexts within which counter-insurgency or stability operations are most typically discussed are those immediately preceding or following significant militarized conflict.<sup>1</sup> However, more recent work, such as the *Military Support to Stabilization, Security, Transition, and Reconstruction Operations Joint Operating Concept* (SSTRO JOC) significantly broadenes the definition of stability operations beyond restorative activities, such as post-conflict security and infrastructure reconstruction, to include preventing instability. Specifically, the JOC identifies assisting “a fragile, stressed government or region to avoid becoming unstable” as an acceptable condition for undertaking security cooperation and stability operations.<sup>2</sup>

This expansion represents a potentially a far-reaching change in thinking about the role of the U.S. military and other agencies in fostering stability and countering instability around the world. There are, inevitably, substantial operational challenges associated with expanding the goals of sta-

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1 See for example, U.S. Army Field Manual 3-24/Marine Corps Warfighting Publication 3-33.5 (FM 3-24/MCWP 3-33.5), Counterinsurgency; U.S. Army Field Manual 3-0 (FM 3-0) Operations; and Joint Publication 3-0 Joint Operations. By contrast the Chief of Naval Operations' January 2010 U.S. Navy's Vision for Confronting Irregular Challenges takes a slightly more preventative approach to the instability underlying irregular warfare ([http://www.navy.mil/navydata/cno/CNO\\_SIGNED\\_NAVY\\_VISION\\_FOR\\_CONFRONTING\\_IRREGULAR\\_CHALLENGES\\_JANUARY\\_2010.pdf](http://www.navy.mil/navydata/cno/CNO_SIGNED_NAVY_VISION_FOR_CONFRONTING_IRREGULAR_CHALLENGES_JANUARY_2010.pdf)).

2 Military Support to Stabilization, Security, Transition, and Reconstruction Operations (SSTR) Joint Operating Concept, Version 2.0, December 2006; pp. vi; 19; [www.dtic.mil/futurejointwarfare/concepts/sstro\\_joc\\_v20.doc](http://www.dtic.mil/futurejointwarfare/concepts/sstro_joc_v20.doc).

bility operations from primarily restorative activity in already militarized conditions to include preventative actions as well. However, as the merit and feasibility of an expanded notion of stability operations enters into the policy debate, a more immediate conceptual challenge arises: Although the descriptions of “stability operations” in DoD guidance and doctrine are both thorough and relatively consistent, it is difficult to identify a measurable definition of the end goal—stability and the political, economic, and social dynamics that define it.

This issue is particularly important in the developing international context, because what constitutes stability for functioning, sovereign states is different from the criteria for stabilization in conflict and post-conflict situations, and analysts are led to ask significantly different questions depending on the context. For example, in the midst of conflict and in immediate post-conflict environments, the question of stability can be thought of as “how do we repair what’s already broken?” Over time, as post-conflict stabilization and reconstruction takes hold, the question transitions to “how do we ensure re-emerging social and political systems do not break again?” Both of these questions, however, differ significantly from the question underlying the stability of functioning states, which can be thought of as “how do we prevent still operating systems from breaking in the first place?”

In sum, two conceptual elements critical for assessing the merit, feasibility, and implications of preventative stability operations are currently lacking: 1) a commonly understood, precise, and testable definition of state stability; and 2) careful delineation of the factors contributing to overall stability, and the interactions among them. While perhaps not always causes for concern among pundits, for those charged with analysis, modeling, and simulation, and operational planning, this seemingly trivial conceptual deficiency or fuzziness poses serious methodological difficulties and makes developing and calculating meaningful measures of effectiveness virtually impossible.

This paper proposes a testable operational definition and a conceptual model of state or sub-state stability. It begins with a brief discussion of consensus regarding the indicators of stability, then presents a model of stability developed for Strategic Multi-layer Assessment (SMA) project and designed to be tailored to particular states and external influences. Working from a generic model guides the analyst or planner in developing the



contextual specificity so essential to creating a rich contextual understanding of stability for a specific state and region.

### 1.5.1 Defining state stability

Even the Stability Operations Joint Operating Concept (SO JOC) recognizes that “stability can be a misleading word.”<sup>1</sup> Clearly, stability as applied to political and social systems is one of those concepts where reliance on the “I know it when I see it” definition is common and official documents tend to approach specification via partial lists of indicators rather than precise definitions. That said, as shown in Table 1, these indicator lists do give us a clue as to the underlying political, economic, and social dimensions of stability, and the activities necessary to reinstitute stability in post-conflict environments. What remains difficult to determine from these individual indicators, however, is how and where each affects the other to determine overall stability.

Table 1. COIN and stability operations objectives.

	Political	Economic	Population/social
FM 3-07, Stability Operations	Stable <b>governance</b> Established rule of <b>law</b>	Stable economy	<b>Social well-being</b> Safe and <b>secure</b> environment
Stability Operations Joint Operating Concept	Legitimate, local <b>civil governance</b> ; Ability to provide for its own <b>security</b> ; Established <b>rule of law</b>	Economic activity	A safe and <b>secure environment</b> ; Essential <b>social services</b> ; Emergency <b>infrastructure</b> Reconstruction; <b>Humanitarian</b> relief
FM 3-24/MCWP 3-33.5, Counterinsurge ncy	Effective <b>governance</b> by a <b>legitimate</b> government: Consistent and fair <b>selection</b> of leaders; Popular political <b>participation</b> ; Regime acceptance by major social institutions. “Culturally acceptable” rates of political development	“Culturally acceptable” rate of economic development	Host nation ability to provide internal and national <b>security</b> ; “Culturally acceptable” levels of corruption “Culturally acceptable” rates of social development

<sup>1</sup> Stability Operations Joint Operating Concept (2004 pp. 8)

DoS Post-Conflict Reconstruction Essential Tasks	<b>Justice</b> and reconciliation Governance and popular <b>participation</b>	Economic stabilization <b>Infrastructure</b>	<b>Security</b> <b>Humanitarian</b> and <b>social well-being</b>
Military Support to SSTR Joint Operating Concept, Major Mission Areas	Establish representative, effective <b>governance</b> and <b>rule of law</b>	Support economic development	Establish and maintain safe, <b>secure</b> environment; Deliver <b>humanitarian assistance</b> ; Reconstruct critical <b>infrastructure</b> and restore essential services

One attempt to provide a general, measurable definition of the stability of a nation-state applicable across contexts and consistent with the DoD documents, as well as academic research and literature, is the operational definition used in a Strategic Multi-Layer Assessment study of Stability in South Asia. It defines the stability of a state as:

...a compound function of a state's political, economic and social performance where the political system maintains sufficient political performance measured by extraction, reach and services and/or the coercive power necessary to retain internal control and be regarded as a legitimate authority by a majority of citizens; the economic system (formal or informal) sustains sufficient growth to support the minimal needs of the majority of citizens; and, there is an absence of severe social cleavages and significant violent conflict.

### 1.5.2 Articulating the underlying model

There are two necessary steps in evaluating stability conditions and exploring types of counter-instability activities that the U.S. might take. The first is to identify the primary sources of stability and instability in an area of interest, followed by careful exploration of the effects—negative or positive, long or short-term—associated with activities designed to bolster stability. A well-founded conceptual framework is essential to guide assessment of both existing and potential stabilizing and destabilizing factors. Although this paper certainly does not represent a comprehensive articulation of the depth of military thought on this issue, unfortunately there is little suggestion in official guidance and doctrine of the ways in which po-

litical, social, and economic weaknesses are thought to affect one another to create conditions of overall instability over a range of environmental conditions. Put in the terms of a methodologist; the conceptual model at the foundation of official guidance has not been specified. The importance of this step cannot be overstated. It is a critical foundation for any analysis, assessment, or measurement.

Whether acknowledged or not, all analyses and measures of effectiveness are collected against some theory or implied model; including the aspects of a phenomenon considered relevant, and excluding those that are not. A conceptual model is simply a clearly stated and transparent manifestation of this same process. However the difference is important. Clearly articulating an implicit model helps us to check the logic, consistency, and comprehensiveness of the explanation. Moving from general concepts, such as social and governing stability, to variables that can be observed and analyzed (data) requires detailed understanding of the nature of these concepts both generically and in the context of a specific state or region. Conceptual models provide compact, manageable and workable representations of a larger, more complex and uncertain reality. By outlining the factors that contribute to a phenomenon as well as the relationships between them conceptual models help the analyst to understand not only “what” might occur but “why” it might occur and what might be done to either encourage or inhibit it. The purpose of a conceptual model is not to recreate the world in all its complexity; rather, it is a simplification of the key aspects of the phenomenon of interest<sup>1</sup>.

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1 Political scientist James Rogers’ analogy between models and maps may help explain how these abstractions are useful when we try to understand the social world. “If one compares a map of a city to the real topography of that city, it is certain that what is represented is a highly unrealistic portrayal of what the city really looks like. The map utterly distorts what is really there and leaves out numerous details about what a particular area looks like. But it is precisely because the map distorts reality – because it abstracts away from the host of details about what is really there – that it is a useful tool. A map that attempted to portray the full details of a particular area would be too cluttered to be useful in finding a particular location or would be too large to be conveniently stored.” Rogers, James. 2006. “Judicial Review Standards in Unicameral Legislative Systems: A Positive Theoretical and Historical Analysis.” *Creighton Law Review* 33(1) 65-120.

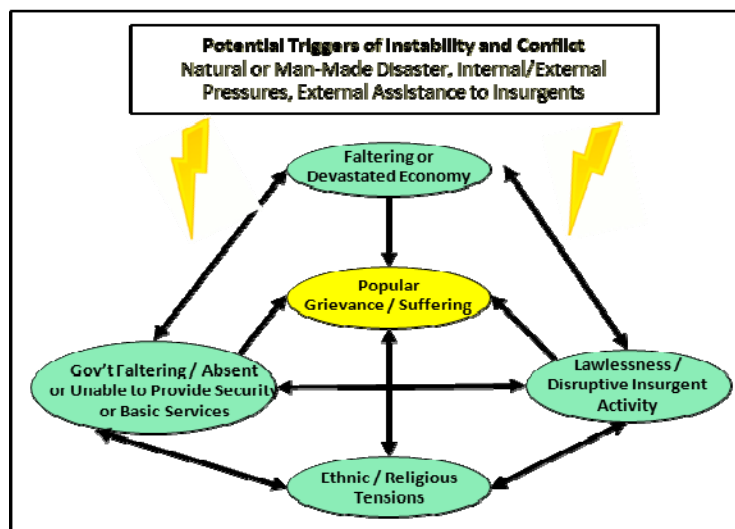


Figure 8. SSRT0 JOC state stability and instability triggers

In the case of planning for both restorative and preventative stability operations a conceptual stability model would be used to assess both the success of reconstruction and stabilization efforts in post-conflict environments<sup>1</sup> and the overall stability or instability of existing state systems. It would also help identify specific points of weakness or strength within a system, increasing both our understanding of the sources of stability and instability within a specific system and our ability to precisely target actions to increase overall stability. Figure 8, reprinted from the SSTRO JOC<sup>2</sup>, is a good beginning to a conceptual model of the governance, economic and social conditions exacerbated by drivers of instability. The model presented below is consistent with this concept but takes the next methodological step; decomposition of the major concepts into their constituent factors.

The remainder of this paper presents the Stability Model (STAM) as an example of a fleshed-out conceptual model—essentially a series of hypotheses regarding stability. Once tailored to a particular state or sub-state area, it is intended to guide analysts and planners in the situation assessment critical to contingency planning and preparation. The location-specific STAM is intended to guide analysts and planners in the situational as-

1 In fact the lack of a common conceptual model linking stability factors makes operational use of valuable measurement frameworks, such as the Measuring Progress in Conflict Environments (MPICE), extremely challenging and can limit our analysts' ability to compare data collected in different contexts.

2 Military Support to Stabilization, Security, Transition, and Reconstruction Operations (SSTRO) Joint Operating Concept, Version 2.0, December 2006 pp. 19.

assessment critical to contingency planning and preparation. It is applicable to both preventative and restorative stability operations. The generic form is presented first followed by an illustration of the framework as operationalized (tailored) for the identification of stabilizers and destabilizers in Pakistan.

### 1.5.3 The Stability Model (State STAM)

The generic STAM<sup>1</sup> shown in Figure 9 is a parsimonious conceptual framework for assessing political stability over the mid- to longer-term, where overall state stability arises from three necessary but not sufficient factors: economic stability, social stability and governing stability. The definitions and decomposition of the concepts into contributing and interconnected factors is based on a wide range of research and theory (including anthropology, international relations, comparative politics, social psychology, economics). The foundational assumptions of the model are shown in Table 2.

**Table 2. STAM assumptions.**

A1: Political, economic and social stability are necessary but not sufficient to explain or predict durable state stability.
A2: Constituents look to and expect a governing, economic and social system to provide them with certain “goods.”
A3: A governing economic or social system will be stable if it is perceived by its constituents to meet their psychological and/or material needs (i.e., provides “goods”) and expectations.
A4: Dissatisfaction with the provision of goods by a political, social or economic system encourages opposition to and/or violence against that entity.

The STAM is intended to address questions such as:

- Which aspects of economic and social conditions and governance most influence stability, (or for post conflict environments, are important for understanding the transition process)?
- Is the state (or province) moving toward conditions consistent with stability (or in post-conflict environments: suitable for transition)?

<sup>1</sup> The model, originally called the “Durability Model” and its User’s Guide were first developed in response to a request to the SMA team by ISAF to measure the impact of actions and other activities on developing stable and *durable* political, economic and social systems in Afghanistan. A more detailed discussion of the use and development of conceptual models, as well as examples of the application of the original Durability Model (State STAM) to Afghanistan, is available from the Strategic Multilayer Assessment Office, POC: Sam Rhem Samuel.Rhem.ctr@js.pentagon.mil.

- Are the economic, social and political conditions conducive to stability (or in post-conflict environments: suitable for transition)?
- What are the implications, of change in a particular area for overall stability?
- What are the possible effects of internally or externally generated shocks to the system?

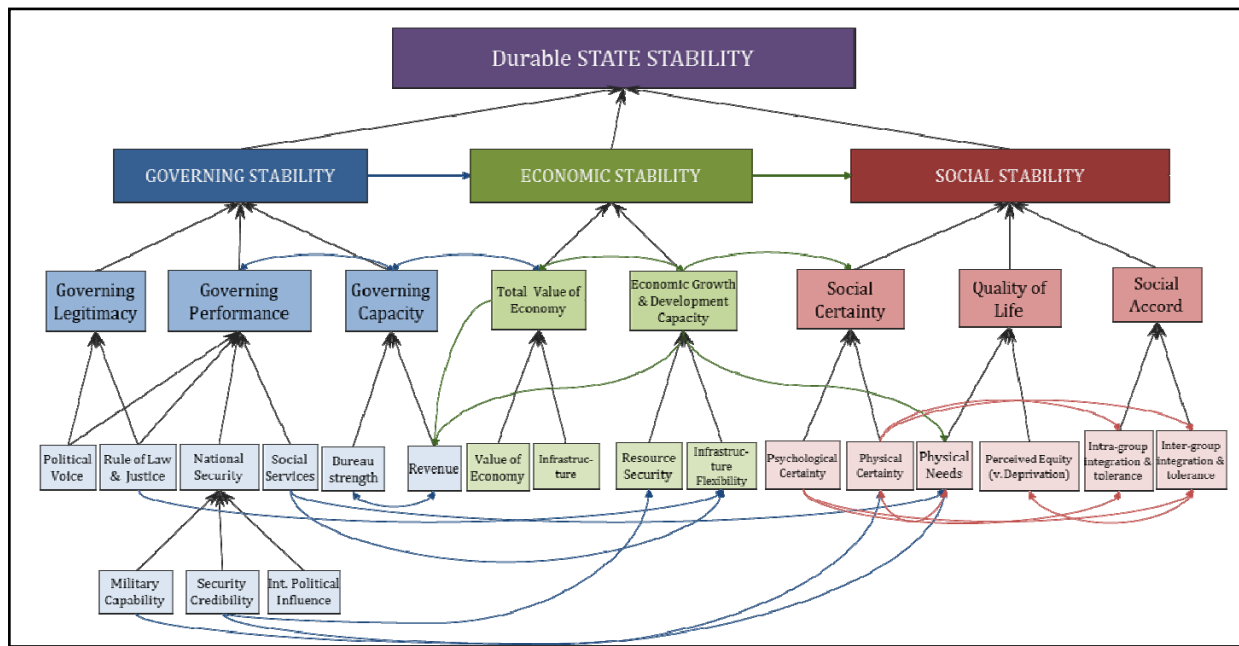


Figure 9. Generic State STAM.

### 1.5.4 Governing stability

According to the generic STAM, the stability of a governing system is a function of three multi-dimensional factors: perceived governing legitimacy, governing performance, and governing capacity (i.e., bureaucratic strength and revenue). Again, it is important to note that the model is designed to apply both to formal and informal governing systems that include both formal and informal rules and institutions.

#### 1.5.4.1 Governing legitimacy

This is defined in terms of the factors that indicate whether and why the political order deserves the allegiance of its citizens and the degree to which citizens perceive that their interests are accounted for or there is an accessible means to have them heard by governing decision makers.

#### 1.5.4.2 *Governing performance*

This can be thought of as how well a government delivers broadly-defined “goods” sought by individuals and groups in the political system. Performance itself is a function of three types of goods sought from governing systems: representation of one’s interests (political voice); national security; internal security (the provision of rule of law and justice); and the provision of various other social services (e.g., education, energy).

#### 1.5.4.3 *Governing capacity*

To provide services to citizens, the government must possess the *governing capacity* to do so. Specifically, the government must have the revenue needed to provide services, and the bureaucratic strength to distribute them. Irrespective of the degree of stability or instability, different political and social systems are distinguished by the different levels of importance they place on the various factors that contribute to governing stability. For example, in a totalitarian dictatorship internal security is typically a major factor in maintaining political stability and political voice is minimized. By contrast a socialist democracy is characterized by much greater concern with provision of social services such as health care and education.

There is an interesting relationship between capacity, legitimacy, and governing performance. In developing or post-conflict states, as the ability to increase revenue and the bureaucracy visibly strengthen, citizens often expect the government to provide better services, or an increased array of services. Researchers have shown that in many regions the failure of a governing system to provide goods or services, whether from lack of political will or lack of capacity, often leads to a perceived lack of legitimacy for that system among political actors and constituents (e.g. failure to distribute oil revenue in the Sudan.)

#### 1.5.4.4 *Economic stability*

The stability of the economic system (rather than just its wealth) is defined in terms of two broad underlying factors: economic capacity and the level and rate of economic development.

##### 1.5.4.4.1 *Value of the economy*

This is the value placed on the elements of economic activity in a nation (i.e., measures of production, demand, and labor). In order to expand eco-

economic capacity, nations must acquire capital in both monetary and human forms – capital and labor. Observed over time, the value of economic capacity provides a measure of *economic growth*. Positive economic growth indicators include the maintenance of rule and law, development and expansion of free markets, small government consumption, and high human capital.

#### *1.5.4.4.2 Economic development*

These involve qualitative change and restructuring in a country's economy. Rather than just *more* economic activity (measured in monetary terms) there is *different* economic activity that generates technological and social progress. The most common indicators of economic development are increasing per capita GNP (gross national product) or GDP (gross domestic product). These measures reflect an aggregate increase in the economic productivity of the population and, thus, presumably, the average material wellbeing of a country's population.

While it can seem reasonable to assume that economic growth and development will always be a positive form of change, there are some instances in which development can be destabilizing. First, research demonstrates that disparities or uneven patterns of economic development that result in a small, wealthy upper class, and a vast, extremely poor lower class can reduce stability at the economic, political, and social level, all influencing the stability of a political system. A second consequence is rapid urbanization, which can weaken the existing social order if older tribal communities and long standing family loyalties are abolished and there are few or no alternative social support systems to replace the former. Third, rapid urbanization can lead to overpopulation and lack of jobs resulting in high levels of unemployment and increasing poverty. Government inability to maintain basic sanitation, for example, or other identified needs of individuals or groups can result in further instability at the economic, social, and political levels.

#### *1.5.4.5 Social stability*

*Social stability* is defined in the STAM as a function of individuals' and groups' perceived quality of life, social certainty, and social accord. Social psychologists propose (and neurobiologists are discovering) that human beings possess specific psychological and physiological needs required for



survival, and that these needs motivate individuals and groups behaviors. When physiological needs are not met, this can lead to social instability.

#### *1.5.4.5.1 Quality of life*

This is determined partly by the ability to meet basic physical needs, but also by how well individuals and groups are doing compared to others. When different groups and individuals within a state have different priorities, it can be particularly difficult for the government to satisfy or even respond to the interests and preferences of all. Researchers of psychological frustration-aggression theory pose that when these needs go unmet for an extended period, frustration increases, which can lead to violence. In a political system in which groups' needs are, or are perceived to be, unmet or unequally met, frustration can lead them to seek assistance through external or violent means or both, causing social instability, and thereby potentially diminishing the stability of the state.

#### *1.5.4.5.2 Social certainty*

Social certainty also influences the stability of the social system. The occurrence of rapid social change can lead to a significant breakdown or even collapse of traditional social, economic, and authority structures, creating uncertainty that can lead to frustration and alienation. Frustration among certain groups and individuals can also emerge when they cannot determine where to seek resources or who or what is responsible for the provision of resources or services. This may contribute to increasing competition and exacerbation of existing social divisions in society, which leads to social instability.

#### *1.5.4.5.3 Social accord*

This is a multidimensional concept incorporating social order and safety, upholding a common identity, a sense of belonging, and an absence of social exclusion. It refers to the density of the networks between members of a community which can be political, but are most often observed as economic (e.g., exchange of goods, other economic interactions) or social (e.g., informal relations, common identifications). Central to the idea of social accord is the role it plays in generating voluntary cooperation between members of a community to reach a collective goal. Rapid social change can deepen existing divisions between social groups and lead to a backlash against the perceived forces of change and modernization. This

decreases social accord and increases perceived deprivation contributing to social instability. The resulting social instability can impact state stability.

#### *1.5.4.6 Operationalizing the STAM for Pakistan*

Academic research and theory provides the information required to construct the generic STAM. The boundaries of the model are set by the assumptions and relational structure of the key concepts; governing, economic and social stability. However, before applying the model to a specific context a further decomposition and tailoring of the model is required. It is at this stage that viewing the model as a set of hypotheses or questions about political, economic and social dynamics, in this case, as applied to Pakistan, becomes most helpful. Following its organizing structure, the analysts tasked with completing this situational assessment were led to various sources and types of data. Quantitative data on political processes, popular perceptions and opinion and economic and financial flows are added to extensive subject matter expert (SME) elicitation, current research on social, ethnic, economic and political and institutional cultures in Pakistan, social geography and assessment of authority and political transitions through Pakistani history. The generic model operationalized for Pakistan (PAK-STAM) shown in Figure 10 (please note: for the sake of visual clarity many of the cross-dimension connections have been omitted.) Using the theoretically based conceptual model facilitates a (relative) straightforward construction of what is now a conceptually sound description of the dynamics of stability and instability fit specifically to Pakistan. Examples of some of the Pakistan-specific amendments to the general model are briefly described below.

##### *1.5.4.6.1 Governing stability in Pakistan*

To account for the strong political influence of the Pakistani army even during periods of civilian rule, the PAK-STAM considers the influence of the military on governing stability at a higher level than the generic model, where it is incorporated under rule of law and national security. The social services identified as salient to the Pakistani people, and therefore potential measures of their perception of government performance are employment opportunity, health, energy, and education. Finally, in the tailored model it was necessary to distinguish between internally and externally generated revenue as Pakistan is heavily dependent on foreign aid and loans to provide services. This creates a very different effect on stability,

both economic and governing, than the same level of revenue generated from internal sources such as taxation.

#### *1.5.4.6.2 Economic stability in Pakistan*

In Pakistan, as in many developing nations, the grey and black economies account for a substantial proportion of the country's overall economic activity. This has significant implications for economic stability directly and also for governing stability. Black economies by definition involve illegal activities, putting greater pressures on security services, law enforcement, and the judiciary. They also create incentives and opportunities for corruption, further undermining governing performance. The money generated in both the grey and black economies is effectively separated from the licit economy, where it would contribute to government revenue through taxation. In addition, organized crime can pose a significant threat to security, as well as providing the means for VEOs and other anti-government groups to finance their political activities.

#### *1.5.4.6.3 Social stability in Pakistan*

The structure of the social stability dimension in Pakistan deviates less from the generic State STAM than the economic and governing dimensions. It is the relative importance of the underlying concepts that requires tailoring to the specific conditions in Pakistan. In particular, rapid urbanization, ethnic and sectarian tensions, and the proportion of Pakistan's population under 25 years of age suggest that social certainty will have a strong influence on overall social stability.

Figure 10 below shows the STAM specified for Pakistan. For reasons of presentation clarity the cross-connections between the governing, economic and social dimensions have been removed from the diagram. These are consistent with the cross-connections presented in the generic model, although the further disaggregation of the model components in the Pakistan model allowed for more specific relationships between components to be articulated. This further precision is only possible once the context of the model is specified.

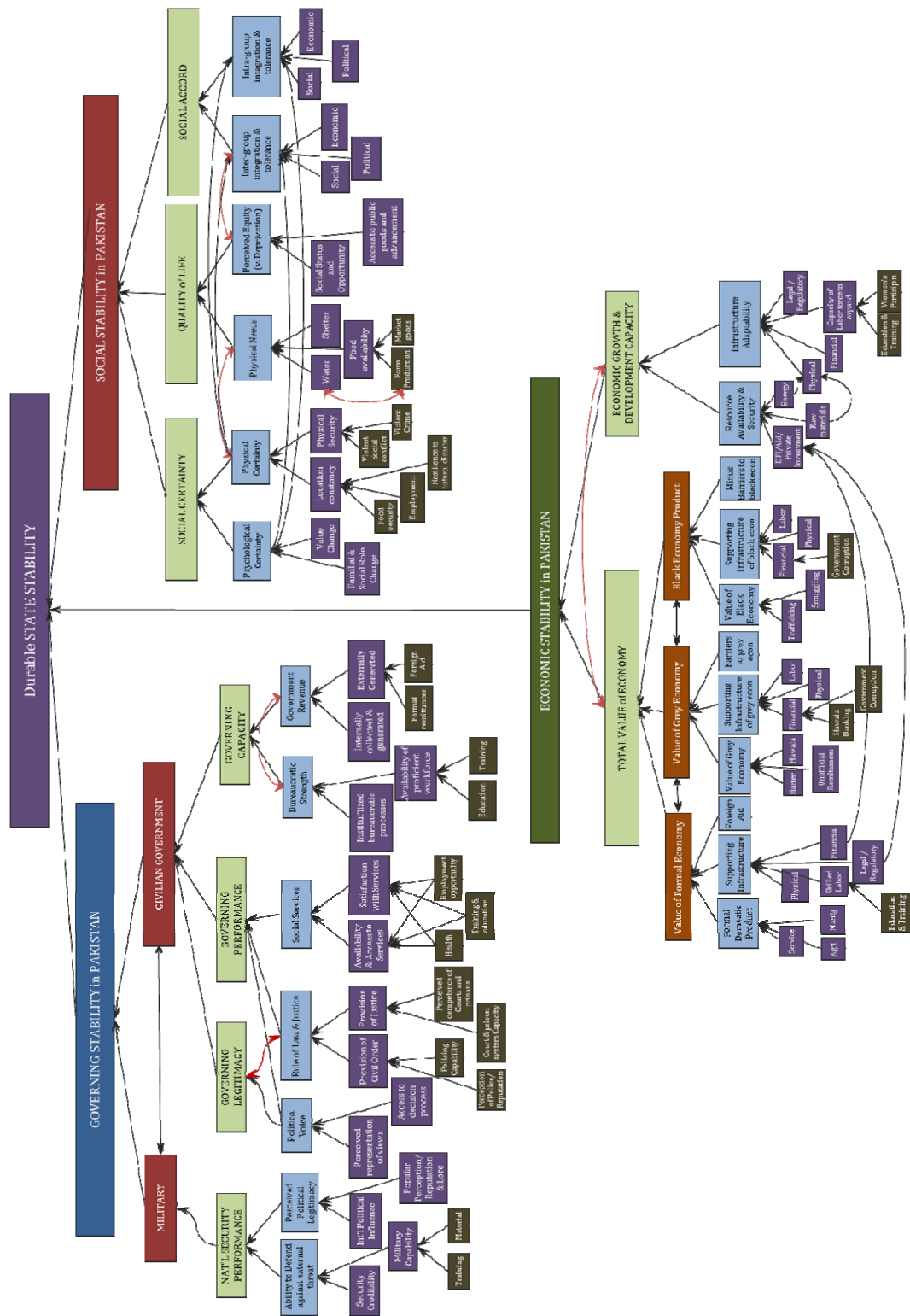


Figure 10. STAM Operationalized for Pakistan

#### *1.5.4.7 External influence on internal stability*

Once operationalized for a particular state, the STAM can also be used to develop a comprehensive understanding of how and where different external actors can influence state stability. By mapping the points at which external actors intersect with components of state stability, the STAM can be used as the basis for a model of regional influence. Certainly, including the regional influences on a state's stability generates a more comprehensive, but more complex model. The advantage of this added complexity is most evident when it comes to assessing the potential for intervention or interference. Analysts and planners can identify potential points of influence open to the U.S. and other external actors, as well as the relative influence various actors have at each point. They can then trace how the impact of proposed U.S. (or foreign) actions travels from the initial point of contact with the domestic model, throughout the model. This helps improve our understanding of the most efficient and least risky options for enhancing a state's stability, as well as helping us to better understand the potential for help from allies, and, perhaps more importantly, interference from actors with competing interests and goals.

For example, in the case of Pakistan an analyst might include six external actors with interests in and influence over Pakistan's stability: India, the U.S., China, Afghanistan Saudi Arabia and Iran. Each actor has different capabilities and different areas interest, and each can access and influence Pakistan's domestic environment at different points. Understanding the points at which each actor can affect the system enables analysts and planners to be more efficiently in terms of how they work to change the domestic environment and how they seek to motivate or prevent others from changing the same environment.

When the model is used to trace the possible consequences of a proposed action, it can also help analysts and planners predict possible unintended consequences prior to initiating an action. In effect, the model allows users to gain the "lessons learned" without having to make the mistakes that teach the lesson. More importantly, perhaps, the regional model enables us to locate the source of those negative effects. If identified, in advance it becomes possible that such second and third order effects can be avoided, and unintended consequences minimized. Or if not, that planners can make a more comprehensive assessment of whether the potential benefits to stability outweigh the potential negative ramifications.

### **1.5.5 Conclusion**

This paper has argued for more conceptual and methodological rigor in looking to a future where irregular warfare and stability operations take on increasing importance in driving military strategy and activities. Such an approach has the potential to help us better assess and interpret the outcomes of counter-insurgency, counter-terror or the stability components of other operations in post-conflict environments, as well as the readiness of such states to transition. More importantly, perhaps, we contend that a better understanding of the conditions underlying state stability generally can help the U.S. engage more proactively in countering the instability that fosters conflict and violence. Toward this end, the STAM stands as an initial attempt to provide a conceptual structure upon which analysts and planners might put into practice the forward-looking guidance for thinking about stability and stability operations provided by doctrine and guidance.

## **1.6 Piercing the noise floor: The EUCOM Deep Futures Method and the acquisition of socio-cultural insight in support of strategy and policy formulation**

*Mr. Bill Busch, Ms. Shana McLean*

### **1.6.1 Why Deep Futures?**

The genesis of the EUCOM Deep Futures concept lay both in the imperatives of evolved Department of Defense (DoD) Policy and Strategy and in lessons learned in the crucible of counterinsurgency and stability operations in Operations IRAQI FREEDOM and ENDURING FREEDOM. The former required Intelligence to dive deeper into the operational environment so as to better understand precursors to instability and conflict with an eye towards proactive mitigation. Discerning those precursors, assessing their potential virulence while concurrently looking for ways and means to turn risk into opportunity demanded Intelligence professionals move beyond classic threat calculations. The latter presented a comparable dynamic, reflected in “Fixing Intel: A Blueprint for Making Intelligence Relevant in Afghanistan” (Flynn et al. 2010), which manifested itself at the operational and tactical levels of war, where almost exclusively threat-oriented Intelligence proved insufficient in its ability to inform execution of counter-insurgency and stability operations.

### 1.6.2 The imperative of evolved strategic guidance

In our estimation, the 2008 Guidance for the Employment of the Force (GEF) and its companion document, the Joint Strategic Capabilities Document (JSCP), marked a watershed moment for the Combatant Commands (COCOMs) in that it explicitly nested operations and contingency plans, execution of which had heretofore been the COCOMs' *raison d'être*, in broader, full-spectrum theater campaign plans (TCPs). By directive, these TCPs were to include, indeed emphasize, the use of U.S. general-purpose forces to proactively shape the Steady-State/Phase – o *Shaping* operational environment. With this revised strategy construct, COCOM commanders added security force assistance, stability operations, humanitarian assistance/disaster relief, and broader military-to-military engagement, training and partner capacity building to their respective quivers. The 2010 GEF-JSCP companion documents not only re-affirmed this commitment to full-spectrum plans and operations, but expanded it.

### 1.6.3 The imperative of counter-insurgency (COIN) lessons learned

In *Fixing Intel* (2010) LTG Flynn asserted that the complexity of the operational environment in Afghanistan required innovative approaches to intelligence, and consequently advocated for:

- Operational- and tactical-level teams of select, information/knowledge “super-hunter-gatherers” discovering relevant knowledge wherever it resides;
- These same “hunter-gatherers” taking a holistic approach when observing the operational environment (vice functional approach, *i.e.*, by intelligence disciplines to include imagery intelligence (IMINT) and signals intelligence (SIGINT), among others), and;
- The formation of information/knowledge brokerages, *a.k.a.* Stability Information Operations Centers as per “Fixing Intelligence” that synthesize and convey new knowledge that enables whole-of-government synergies.

LTG Flynn advances these concepts in *Integrating Intelligence and Information: “Ten Points for the Commander”* (Flynn and Flynn 2012) wherein he emphasizes, among other things, the fielding of Intel-Information Fusion Cells that:

- Spurn the predilection to over-classify pursuant to maximum dissemination;
- Have sufficient top-cover from leadership to ask, then answer the hard questions using knowledge, again, from wherever it resides, with the intent to;
- Create “context and shared understanding.”

#### 1.6.4 The Noise Floor

From the position of the COCOM Intelligence Director (J2) and intelligence support to the COCOM commander, this new reality inadvertently created what we describe as an artificial “noise floor.” The noise floor demarcated a point in the operational environment where, once above it, the classic Intelligence processes predominate, indeed, excel<sup>1</sup>. (See Figure 11.) Below the noise floor, however, the non-kinetic, population-centric nature of the phenomena to be discerned and influenced through proactive engagement in Steady-state/Phase O – *Shaping* exceeded Intelligence competencies and technical abilities.

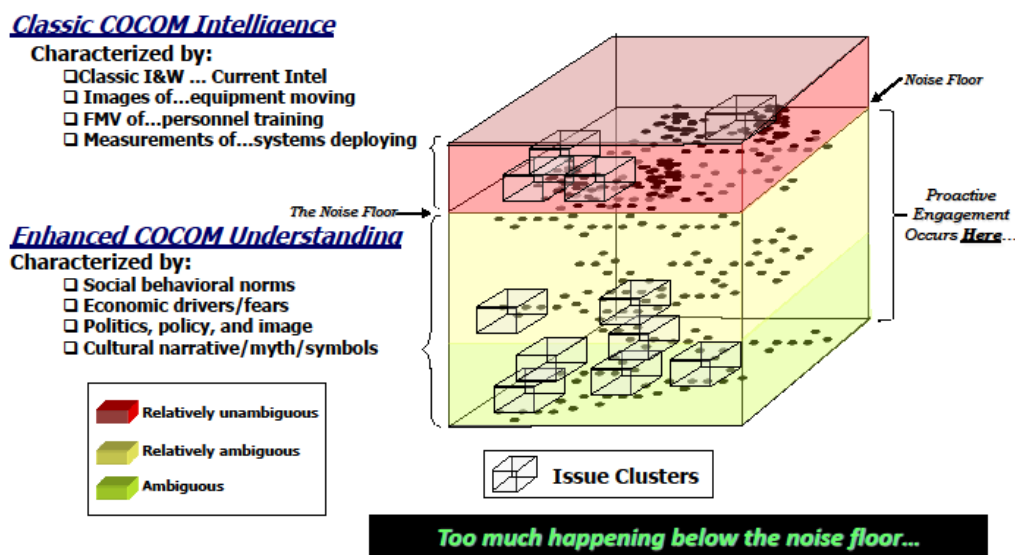


Figure 11. The noise floor and the operational environment.

<sup>1</sup>The processes include but are not limited to: The Intelligence cycle, dependent on the respective “INTs,” or intelligence disciplines, and focused on traditional politico-military threat identification, Indications & Warning, and current Intelligence support to kinetic operations.



### **1.6.5 What lies below the noise floor**

A variety of factors influence the environment in which EUCOM conducts operations. These factors span the PMESII-PT construct (political, military, economic, social, infrastructure, information, physical environment, and time) and can be affected by the elements of national power abbreviated as DIME-FIL (diplomatic, information, military, economic, financial, intelligence, and law enforcement). The complex interaction of these two forces exposes socio-cultural risks and opportunities which are extremely difficult to forecast, categorize, and monitor. Accordingly, socio-cultural issues of medium and long-term importance may fall below the level of day-to-day perceptibility, delaying or even preventing discernment and understanding. With only traditional means, EUCOM may be unable to influence or understand such trends in time to develop effective strategies for engaging and influencing them. Deep Futures (DF) addresses this shortfall by proactively identifying and characterizing risks and opportunities of all kinds to permit successful strategy development for optimized engagement and the achievement of EUCOM strategic objectives over the long term.

### **1.6.6 The efficacy of Deep Futures**

DF is built on the premise that emerging and actionable insight can be systematically developed and provided to the command to enable more effective policy and strategy and to enhance the commander's options for building partnerships and security.

With an understanding of the strategic vision and priorities of the EUCOM commander, DF analysts can use their analytical tradecraft tools and futuring methods to assess the European environment and discern those socio-culturally-based risks and opportunities that may otherwise be missed by standing policy and intelligence practices. DF products are designed to highlight socio-cultural issues, characterize them using tools and practices of the social sciences, derive strategic implications, and identify associated risks to and opportunities for the command. Therefore, the goal of DF research is to extend EUCOM's temporal horizon for issue recognition and decision-making by providing a range of alternative futures, their likelihoods, and their impacts on U.S. interests.

DF is a "mystery-framing" organization (Treverton & Gabbard, 2008), in that the issues DF elucidates cannot be "solved" definitively. DF does not

see its work as “predictive analysis” or “forecasting,” since those terms convey more certainty than DF believes it is possible to attain. As Joseph Nye says, “The job, after all, is not so much to predict the future as to help policy-makers think about the future” (Nye, 1994). He goes on to say, “...the task is not simple prediction. Estimators are not fortune-tellers; they are educators. Rather than trying to predict the future, estimators should deal with heightened uncertainty by presenting alternative scenarios.”

Although the type of intellectual work in which DF is engaged is almost always called analysis, DF is not a traditional military intelligence organization, and the team seeks to distinguish themselves through their topics, timeframe, sources, process, and products. The DF method works in parallel to standing intelligence requirements and classic intelligence processes, and it draws from different knowledge sources but pursues a comparable end: informing decision-making.

#### **1.6.7 The Knowledge Intensive Business Services (KIBS) Model**

DF uses a commercial business model as a pattern for their customer interactions. KIBS are *enterprises whose primary value-added activities consist of the accumulation, creation, or dissemination of knowledge for the purpose of developing a customized service or product solution to satisfy the client's needs*. (Bettencourt et al. 2002) This model places great emphasis on an ongoing dialogue with customers to help them understand their needs and determine the effectiveness of the products in meeting them. It is an iterative process of compounding knowledge and providing ever-more-targeted products to the customers (Strambach 2008).

DF strives to understand the needs of the customer through guidance documents, lists of knowledge gaps, and other documents in order to target production as closely as possible to meet those needs. Customers can ask for specific products, however, as we understand the market sector, we seek to develop a product based on that knowledge; it is usually after that product has been written that DF engages to determine the extent to which a customer's needs have been met or not. If additional production is required, DF works with the customer to scope the next product and continue the dialogue.

DF needs to question customers on the topic as much and as often as necessary, in part so the customer can adequately understand and express his

own information needs, and also with that information, the DF team can most efficiently use its time and resources. In this client service relationship, the customer eventually moves from trusting the data to trusting the service provider, trust becoming more important than a particular piece of information; as Kerbel and Olcott (2010) state, “the client places trust not in analytical products or collection platforms but in a provider’s ability to place data in context...”

That trust is built on honesty, and DF must be frank about what it can and cannot provide, specifically ensuring the customer does not believe DF products convey predictions. To quote again from Nye (1994), “To be useful, estimates must describe not only the nature and probability of the most likely future paths, but they must also investigate significant excursions off those paths and identify the signposts that would tell us we are entering such territory.”

Close customer interaction not only assists DF in answering the correct question and effectively communicating a range of outcomes, but it raises the likelihood of DF’s knowledge creation having an impact on decision-making and policy formation. As Joseph Nye (1994) puts it, “Lucid analytic success...does not ensure policy impact. The purpose of estimating is not publication, but getting ideas into policymakers’ minds.”

#### **1.6.8 DF knowledge lifecycle**

To strike a methodologically sound balance between Command priorities and emerging socio-cultural challenges in the operational environment, Deep Futures addresses issue selection using Command-focused (“top-down”) and environmentally-driven (“bottom-up”) futuring approaches (Fig. 12). Command priorities provide context that bounds topic selection and that orients DF’s appraisals of EUCOM risks and opportunities.

Knowledge Discovery (KD) is a process that obtains and stores the existing and largely peer-reviewed knowledge which is the raw material for DF analysis. It is an iterative process that re-ingests knowledge created by DF, strengthening the whole over time. DF takes advantage of the wealth of scholarship available in open sources on the internet, in journal consolidation services, such as EBSCO and ProQuest, and employs web scraping to gather large amounts of targeted information and structured data into the DF portal. DF’s sources vary from those of traditional intelligence organi-

zations due to the DF focus on unclassified information and scholarship from the soft and hard sciences.

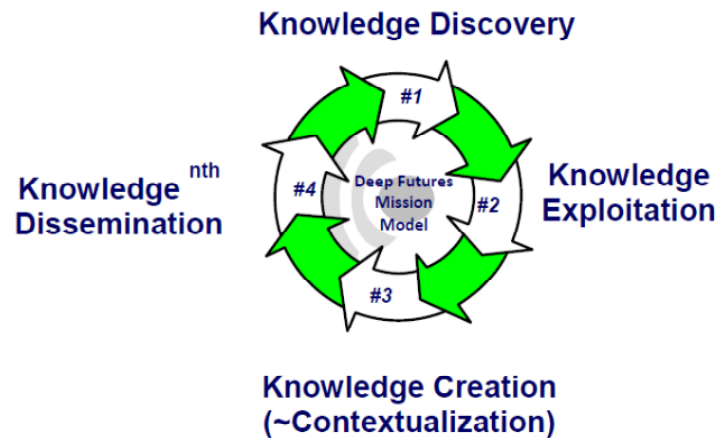


Figure 12. Deep futures knowledge lifecycle.

Knowledge Exploitation (KE) uses the DF analytical tool suite, Savanna, to sort and display information in the repository in ways that enable the analysts to quickly look through a large volume of documents and visualize information to give them a new perspective. This step also includes the exploitation of datasets.

Knowledge Creation (KC) is the process by which the analysts use their tradecraft to develop new ideas and insights from pieces of previously-known information, and turning implicit knowledge into explicit knowledge. In the strictest sense, *analysis* breaks something into its component parts in order to study it. In order to create new knowledge for EUCOM and the Whole of Government, DF must go beyond analysis to *synthesis*. Synthesis combines the elements which are the output of the analysis in imaginative, yet grounded, ways to create something new (Kerbel and Olcott 2010; Michalko 2006). While the term *analysis* has been used within the Intelligence Community (IC) and the Department of Defense (DoD) to include *synthesis*, DF finds it useful to distinguish between the two terms as two distinct parts of the process of knowledge creation. Problems and knowledge are broken down through structured analytical techniques, and then the output is creatively recombined and set in the context of strategy in order to ensure its relevance to the Command.

These insights are developed into supportable arguments, thoroughly cited, and include risk and opportunity analyses that ensure product

actionability. DF executes risk and opportunity analysis by carefully considering Global Employment of the Force (GEF)-directed and command-desired endstates, the implications of the operational environment, and potential instruments of national power, the DIME-FIL principles, that can be applied against a given identified risk.

Knowledge Dissemination (KDi) ensures the knowledge and insights created by DF are distributed to specific customers, as well as broad audiences who may benefit or have interest. The Knowledge Commons, under development with Pacific Northwest National Labs, will allow DF to disseminate its products, sources, and research methods, as well as engage collaboratively with partners and customers.

#### **1.6.9 The Deep Futures Product Line**

To date DF produces three different types of products, the key differences between each being issue complexity and level of applied analytic fidelity. DF *QuickLooks*, hereafter QLs, capture emerging phenomena in the operational environment. QLs provide a brief discussion of individual issues, trends, or topics of emerging interest that may have future implications for EUCOM. DF *inSightlines*, or iSLs capture emerging insight on more complex environmental issues. In iSLs, research, analysis, and conclusions are codified as “emerging” based on their initial capture of developing strategic risks and opportunities relating to issues of significance to EUCOM. DF *DeepLooks*, or DLs, provide actionable insight into the operational environment. The DL is an integrated, in-depth analysis of QL- & iSL-generated insights with emphasis on socio-cultural trends based on interdisciplinary, multi-method social science research and analysis. Just short of being prescriptive, DL conclusions provide actionable insight by articulating critical nexus between discerned environmental factors and explicit EUCOM goals, objectives, and priorities. In so doing, actionable insight informs strategic planners and decision-makers on the specific implications of given issue or set of issues (see Fig. 13).

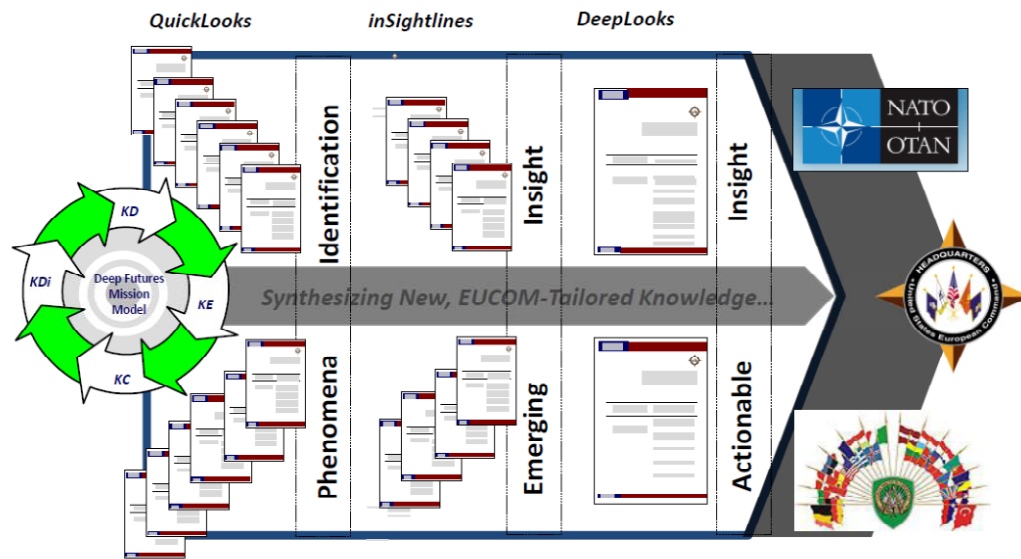


Figure 13. The Deep Futures Product Line.

DF uses the methods and processes discussed above to illuminate trends in the environment which can only be discovered below the noise floor. Still in its Initial Operational Capability (IOC), DF's efforts have discerned issues and trends explored in the following products:

- iSL—Turkey's Demographic Dividend: Mid- to Long-Term Opportunities for EUCOM Arising from Sustained Economic Growth (December 2010)
- iSL—Russia's "Oil Curse": Emerging Insight into Moscow's Dependence on Energy Exports (February 2011)
- iSL—Exploitation of National Security Narratives Fuels Jobbik's Increasing Popularity: Sources and Implications of Rising Ultra-Nationalist Power in Hungary (August 2011)
- QL—Russia: Emerging Insight Into Muslim Populations (October 2011)
- QL—A Trend Toward Increased Information Communication Technology (ICT) Regulation: An Informative Perspective on Digital Regulation in Europe (January 2012)
- DL—European Attitudes toward Iran: A Summary of International Opinion Research (February 2012)
- QL—European Debt, Aging Pose Increasing Risk to Long-Term Economic Growth (April 2012)
- QL—Muslims in the Russian Military: On-Going Force Reform and Demographic Challenges (10-15 years) (April 2012)

- iSL—Extremism inside the EU: the EUROPOL Typology and a Plausible Strategic Environment (June 2012)

DF products can be found on the OpenSource.gov web site (Partners/Defense Dept/EUCOM) or by request, [william.c.busch.civ@mail.mil](mailto:william.c.busch.civ@mail.mil).

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## **1.7 Gaps and ways to improve how populations and social groups can be monitored via journalistic and social media to detect fragility**

*Mr. Kalev Leetaru and Dr. Anthony Olcott<sup>1</sup>*

Open Source Intelligence (OSINT) developed during World War II and the Cold War as a surrogate for leadership analysis, created to use state-controlled newspapers and other state media as the only available means to study the perceptions and intentions of leaders and elites in areas about which we had no other sources of information.

The reason that method worked was, in retrospect, an accident of technology—it was far cheaper to receive information (buy a newspaper, purchase a radio receiver) than it was to create and send it (publish a newspaper, own a radio studio or TV station). Thus, even in states in which media were not state controlled, they still represented the interests, and viewpoints, of the elites, which permitted OSINT analysts to make judgments about at least what the elites wanted the masses to see, hear, and think.

Today, the combination of cheap computing and storage plus nearly ubiquitous access to the internet (increasingly, via mobile devices) means that elites no longer have their monopoly of messaging—anyone can communicate to anyone, about anything. Perhaps even more important, the explosion of media choices means that people can also ignore whomever and whatever they wish. While the volume of the messages that are now available can seem overwhelming, this new media environment allows analysts not only to follow the messages that are being sent (whether by the elites or now by new factions, or even individuals seeking to influence others)

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<sup>1</sup> Author of *Open Source Intelligence in a Networked World*, Continuum International Publishing Group, 2012.



but—even more important—to gain insight into which messages resonate, and which don't, for societies, peoples, and groups in whom we are interested. The most important indicator for understanding other people is to learn what they are interested in and what they pay their attention to—this permits us to understand their hopes, their fears, their aspirations, and their value systems. Although the technologies and, as important, the analytic mind-sets for understanding this system of “paying attention” are still in early stages of development, the constant stream of daily life that flows across social media platforms provides rich contextual background information on the narratives of each region and culture.

### **1.7.1 An ever-expanding, ever-changing landscape**

One of the hallmarks of the emerging media environment is change. In 2004 Friendster was rapidly losing users, Facebook was just an experiment in a Harvard dorm room and MySpace was the top social networking site in the world, soon to eclipse Google as the most-visited website in the U.S.. Youtube was a year away, Twitter was two years away and Sina Weibo, its Chinese equivalent, wouldn't debut for another half-decade. Fast-forward eight years and Myspace has largely faded from view, while Twitter processes 340 million new posts a day and users upload a quarter billion photographs and perform 2.7 billion other activities on Facebook every day. Outside of Asia, Facebook connects more than half of all global Internet users, while in China more than 30% of all Internet users make use of Sina Weibo. It took Myspace fewer than two years to reach 100 million users, yet despite taking Facebook twice as long to reach that milestone, it eventually replaced Myspace as the dominate social media site. It is likely that eight years from now the dominant social media sites will not be Facebook and Twitter, but rather yet another generation of platforms. This means we must think not in terms of today's platforms, but rather about what the ever-widening sharing (or, more exactly, offering) of information means now, and will mean in the foreseeable future.

It is important to understand the dynamics underlying this rapid change of platforms, for those dynamics provide the clearest assurance that the social media revolution will continue. The turmoil described above was driven by at least two factors: one, that evolving platforms made it ever easier for people to share information about themselves with others, which rapidly transformed social expectations about privacy and public behavior, and two, that advertisers have become convinced that this public offering of information allows them to ever more precisely target presumed pur-

chasers of their products and services. The increasingly central part that social media are beginning to play in commerce is a guarantee that, no matter how uncomfortable their loss of prestige and control may be to governments and other elites, and no matter what legal, technical, or other impediments they attempt to place in the way of social media, entrepreneurs will continue to find ways to allow people cheaply and quickly to share their information with others.

This may be seen in how the rate of change has accelerated in the digital era, and how the total number of information sources it is possible to monitor has increased at an exponential rate. In 2011 more than 150,000 new domain names were registered each day and by March 2012 there were more than 644 million web sites worldwide. The volume of content on each of those sites is also growing rapidly. More than twice as many words were posted to Twitter every day in 2012 as were published in the entirety of the New York Times over the last half-century. By 2015 there will have been as many words posted to Twitter as in all of the books published worldwide over the last half-millennium. YouTube, just one of the many video sharing sites, adds so much content every minute that it would require 48 hours to watch it all, while every month the site adds as much footage as the three major U.S. networks have generated in their entire histories.

This huge volume of information poses at once great opportunities, giving ever-increasing access to the real-time thoughts and opinions of the world's citizenry, but also requires a fundamental shift in how open source information is understood and employed. The theoretical underpinnings of open source analysis lay in trying to understand what messages elites were sending to those whom they wished to have follow and obey them. Thus analytic practice had monitors construct detailed dossiers on each media outlet, as illustrated by the fact that daily media monitoring reports from the CIA's Foreign Broadcast Information Service (FBIS) included a note at the bottom of each translated news article with details about the ownership and known biases of that outlet.

In the Internet era, knowing the past behavior and biases of a particular message sender can still be important, if that is central to the analytic question that is being asked. However, given the enormous numbers of message senders who are now all competing desperately to draw an audience, most of the interesting and important analytic questions have to do

not with the identity of the senders, but rather with who is paying attention to what, and for what reasons. Learning how to notice what audiences of interest are paying their attention to, and with what effect, is a new skill for the analytic community. The tools for finding the message threads toward which audiences of interest are turning their attention—especially for finding those threads early enough to be able to act on (or react to) the consequences of that gathering interest—are only just beginning to emerge. Even more challenging, in many ways, is that the move from monitoring message output to trying to understand message uptake requires new sciences of causality, which are only just beginning to form.

### **1.7.2 Who is talking and who are they listening to?**

Traditionally intelligence has been based on a collection model— assembling data points against a pre-stated topic—rather than on a question model. The exponential growth in available information (e.g., every 7 days the equivalent of all the words ever spoken by human beings since the dawn of the species transits the global internet) requires that analysts and policymakers become more specific about asking questions—which in turn will require that collectors and analysts be more precise about the venue of the information they are gathering and using. If social media are being used to characterize distant populations remotely—as they can be—it is crucial to be explicit about how source material is being used.

Social media are context specific—access to and use of social platforms varies dramatically over geographies. In some states or regions, barriers to access are technological (large empty terrains like Siberia or the Brazilian rainforest often have no mobile access) or economic (Mexico has the highest mobile phone rates in the world), while in others they may be political, cultural, or societal (China for example strives mightily to control social media, including trying to curb the microblog site Sina Weibo). States may see social media as a threat and attempt to curb it, such as Iran's attempts to force bloggers to use literary language instead of vernacular, to limit their audience, or they may see it as a tool to help their populations, as with India's experiments to allow non-literate people to send and receive SMS messages.

Changing norms on privacy and the types of information shared are a particularly dramatic feature of this new landscape. Google Street View provides a street-level view of more and more of the world, showing people going about their daily lives, including working in their yards, or walking

down the street, giving us a glimpse of life from the ground. On sites like Flickr and Facebook people share images of their vacations, parties, and everything around them, creating real-time imagery streams. Populations today post their most intimate thoughts, actions, and likes or dislikes for the world to see, becoming part of a long trajectory of sharing more and more personal information. Despite numerous backlashes and privacy missteps, this trend seems to be continuing forward unabated.

One of the many things this trend permits is to allow faster, more fine-grained, round-the-clock access to societal reaction around the globe. Today, people from Bangladesh to Buenos Aires busily tell one another and their neighbors what they see, what they think, and what is important to them, thus offering unparalleled visibility into what global society is paying attention to. Moreover, the constant stream of daily life that flows across social media platforms provides rich contextual background information on the narratives of each region and culture—one of the most important (albeit understudied) preconditions for whether or not a message might “go viral” (that is, draw extraordinary attention from a group) is the degree to which the message does or does not fit into the various narratives (or self-stories) of the given group.

Citizens are also becoming a vast ground-based social sensor network, providing a continuous real-time picture of almost every corner of the world. The proliferation of always-connected mobile devices has meant that citizens and participants are often the first to report on emerging events, streaming photographs, videos, and ground reports minutes to hours before the first mainstream media reporters arrive or in areas where media are unable to access. The first confirmation of Muammar Gaddafi’s capture was through a cellphone video shot and posted online just moments after he was captured, while in Egypt’s Tahrir Square, every hand held a cellphone, not a gun. The super-secret takedown of Osama Bin Laden was live-tweeted by a nearby Pakistani journalist, then confirmed in the U.S. by a former Pentagon official, in advance of the official White House notification.

Social media has also become one of the primary organizing tools for rebel and opposition movements, offering the earliest indicators of emerging unrest, often transitioning over time to serve as the movements’ “official” communication stream. In Syria, a Facebook page serves as the official web presence of the Free Syrian Army, providing images and statements in

real-time from the ground. When state-controlled media deny access to opposition protests, social media can serve as the only information stream on their activities, as with the 2011–2012 Russian anti-Putin protests, in which government media primarily focused on pro-Kremlin rallies. As opposition groups emerge into public view, social media can further offer critical insights into popular reaction to them and whether they are growing or shrinking in public support. The declining number of “likes” and users “attending” anti-Kremlin rally pages on Facebook and VKontakte were an early indicator that the size of physical rallies in Moscow had likely reached their peak and would be diminishing in size, rather than continuing to grow.

The ability to measure who is paying attention to what is one of the core tenets underlying the communication model of social media. With mainstream media, readership or viewership could be measured only at the level of the medium itself—circulation numbers for a newspaper or average primetime viewership for a television show. This offered only an estimate of the *potential* audience for a given message, as not everyone picking up a copy of a paper may have read a particular editorial on page 20. Social media operates at the level of the message itself, breaking the articles in a newspaper into individually-addressable web pages, or in the extreme case of Twitter, each sentence or thought into its own object. Publishing, viewing, and sharing with others all occurs at the level of the message, allowing an analyst to see how many times a YouTube video has been watched, by people from where, and of what age and gender, or how many links to it have been shared within a certain community on Facebook. More critically, all of these indicators are updated in real-time, allowing an analyst to see a story spread moment-by-moment and observe as it enters a community of interest and their evolving reaction to it.

Platforms are beginning to enrich both publishing and readership with geographic information, allowing one to filter Twitter posts, for example, by the tweeter’s physical location at the moment of publication based on the GPS coordinates recorded by their mobile devices. This allows filtering of messages to those published in the immediate vicinity of a conflict versus commentary from abroad. Location itself is becoming a form of publication, with services like FourSquare and even Facebook encouraging users to constantly broadcast their current location and activity. Publishing is transitioning from a push model in which users consciously take action to share a piece of information, to a pull model in which services like Spotify

and iTunes automatically update a user's social profiles with the music or movies they are listening to at that moment.

### **1.7.3 Challenges and opportunities**

The notions of "authority" and the ability of information to impact physical behavior have shifted in the social era. A single post by a single individual can "go viral," reaching millions within days and ultimately topple a government regardless of whether the information is true or not ("truth," it should be added, is one of the most slippery concepts with which analysts and policymakers can engage; in many ways it is also the least useful). In effect, the volume and rate of social media means that the information environment is increasingly defining reality and information is often able to move more quickly than governments can move to censor it.

This does not mean, however, that governments, authorities, or other elites have abandoned the field. While the low cost and high volume of social media may have caught some authorities by surprise, an emerging trend of "cat and mouse" demonstrates the continued resourcefulness of governments and other authorities in maintaining some degree of control over it. In addition to direct and relatively crude efforts such as trying to block internet access, arrest bloggers, or stage fake protests at which anyone who turns up is arrested, authorities are demonstrating a growing ability to turn social media back on themselves. For example, the lack of a link between virtual and physical personas and the low cost (usually free) of creating a new account on most social platforms has led to a phenomenon known as "astroturfing" (or artificial grass-roots movements). Tens or hundreds of thousands of accounts are created and turned over to automated "bots" or armies of paid personnel who rapidly post a large volume of messages for or against a particular issue, or, even more simply, post thousands of "likes" on a given Facebook page. The anonymity of the online world makes it easy for these inorganic "media campaigns" to quickly saturate the organic online discourse, promoting or discouraging selected topics and viewpoints according to the desires of the elite.

The formalized observation and assessment of remote populations through media channels has a more than 70-year history in Western intelligence, but the collapsing cost of obtaining that media, its vastly increased volume and rate, changing privacy norms, and better software algorithms are all combining to lower the barrier to entry and expand analysis to non-traditional venues and at greater speeds. Within hours of a major event

like Osama Bin Laden's death, preliminary maps can be constructed showing which regions in which countries are reacting negatively to his death, while U.S. forces engaged in nation building can more directly tap into the needs and concerns of the domestic population. Even the U.S. Geological Survey now counts the number of earthquake-related tweets in the immediate vicinity and aftermath of each earthquake worldwide as a proxy for the "human impact" of that earthquake: geological models might suggest an impact, but did people in the vicinity actually notice the earthquake enough to discuss it online?

Just as social media is making it easier for analysts to access and assess remote populations, it is also helping our adversaries do the same. The internet and social media in particular have become one of the chief communications platforms for violent extremists, with organizations like al-Qaeda publishing recruiting materials, training manuals, and video documentaries on the web and using social platforms to disseminate, engage, recruit, and communicate.

Most OSINT analysis is still human-centric, but software tools are increasingly automating the collection and filtering processes, helping to narrow the volume of material analysts must look at. Dimensions such as the positivity or negativity of discourse are being visualized over time using software tools, driven by an emerging literature in the economics disciplines showing that social media tone can predict product sales, match phone polling of political candidates, and even forecast stock market movements. Companies are deploying ever-greater resources to measure and monitor social media in ways that only governments could formerly achieve. This is driven in large part by the reliance on advertising, marketing, and data mining as the primary revenue source of social media platforms, which has dramatically lowered the bar for bulk-scale observation of populations. While there are many challenges before us, perhaps the greatest challenge will be how to synthesize and integrate the rapidly increasing pace and volume of material available today using collection, analysis, and information delivery systems developed in by-gone era of information scarcity. Our present structures were built to make sense of scarcity, and now they must make sense of a deluge. Thirty years ago it would have taken government spies secretly tapping telecommunications lines to monitor the day-to-day dreams and fears of a population, while today any company can pay Twitter a monthly fee to gain access to 340 million daily glimpses into the global consciousness. The challenge now is not to obtain the infor-

mation; rather it is to develop ways to understand that information, in a timely and actionable way.

## **1.8 Gaps and ways to improve how populations and social groups can be measured**

*Dr. Charles Ehlschlaeger<sup>1</sup>, Dr. Eric Dimperio, Mr. Jeffery Burkhalter, Ms. Marina Drigo, Mr. Azad Amir-ghessemi, Mr. Patrick Edwards*

### **1.8.1 Abstract**

This chapter will discuss the recent history of demography for socio-cultural analysis (SCA). Challenges in identifying subpopulations' attributes and attitudes, and social group location from various types of socio-cultural data will be discussed. The socio-cultural data includes census or survey derived, DoD "hunter gathered" (Chapter 1.6) with other subject matter expert information, social media (Chapter 1.7), and open source information. The difficulty in integrating socio-cultural knowledge for population representations will be presented. This chapter argues the benefits of "left of bang" information collection (Chapter 1.1). Finally, this section will argue for the creation of a "human topographic map" system to integrate both quantitative and qualitative socio-cultural information.

### **1.8.2 Background**

Academically, traditional demographic analysis has mostly focused on whether population growth is outstripping a population's natural resources. Those efforts require knowing only how many people are in a particular area. In the 1990's, political demography began to become more relevant in strategic decision making. Political demography is the study of populations, their size, composition, and distribution, as they affect government and politics (Goldstone 2012). A simple SCA example would include the proportion of elderly people likely drawing retirement benefits in 2030. Most political demographic analyses focus on the structure and society of groups closest to the political power of nations. Jack Goldstone (2012) describes political society as a nested hierarchy of the "state," "elites," "popular groups," the "international state system," and the "environment." A political demographic analysis of the state would include a population representation of everyone in that state, but would focus on the

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people closer to the state's power base. For example, in a democratic country the focus would be on those people who actually vote and contribute to political parties. Of course, SCA in conflict zones is much more complex due to transnational criminal organizations (TCO) and violent extremist organizations (VEO). TCO and VEO contribute to the fracturing of social and political groups and increase the difficulty of collecting accurate data about the population. To better understand the environment where TCO and VEO operate, demographic data collection and analysis must be performed in the areas furthest away from a state's governed areas. Unfortunately, ungoverned regions tend to contain the poorest quality authoritative demographic information. Ungoverned regions will almost always have the worst infrastructure and essential services of that country as well. As Chapter 1.6 indicated, demographic data and other socio-cultural information is often of such low quality as to be considered "noise."

To better understand the environment that TCO and VEO operate in, the Department of Defense has been performing demographic analyses for decades. During the Vietnam War, the Civil Operations and Rural Development Support (CORDS) program collected monthly economic, political, and military data on 12,000 hamlets, placing the results in the Hamlet Evaluation System (HES). HES demographic information was critical to understanding Vietnam: like Afghanistan today, 1960's Vietnam hadn't performed a census in its recent history. HES became a de facto rural census, but with less statistical rigor, and it also contained health and education projects. HES arguably contained a more compressive dataset than those now being collected in Iraq or Afghanistan. However, the main benefit of CORDS was the interaction between U.S. forces and the Vietnam troops monitoring the hamlets: it reduced violence in CORDS areas compared to non-CORDS regions. While it is no easy task to understand population characteristics of a different culture, the conflicts in Vietnam, Iraq, and Afghanistan forced the U.S. Government to devote a great amount of resources to collect demographic information. As Chapter 1.1 indicates, this data collection occurred at the worst time of the conflict continuum. Compared to the 1960's, geographic information systems and simulation modeling techniques allow us to better construct representations of the population, infrastructure, and essential services. While marginally useful at the strategic decision making, detailed accurate demographic information is very useful at the operational level.

### 1.8.3 Using demography data today

If it is a true statement that “the primary goal for a stabilization mission is to build a political system that is regarded as legitimate in the eyes of the population” (NDU 2011), we need to understand who the entire population is, not just the social groups supporting the current government. Explicit or implicit demographic data is at the foundation of all population-centric civil-military decisions. Long term stability will require political settlement and reconciliation that include all social groups, including defeated belligerents. Without existing accurate census data, stability monitoring requires extensive and expensive surveys with additional demographic data collection. This section discusses the various types of demographic information and their utility for stability operations.

Virtually all social scientists expect demographic information to be aggregated into one of three forms: population density maps, census enumerations of population attributes or household representations or surveys. How these forms of demographic information help measure people and social groups has strengths and weaknesses.

#### 1.8.3.1 *Population density maps*

Population density maps, as prepared by the Socioeconomic Data and Applications Center or the Oak Ridge National Laboratory’s Distributed Active Archive Center (<http://sedac.ciesin.columbia.edu/>, <http://daac.ornl.gov/>), estimate how many people live within a specific area for every location within the study region. Density maps are the most primitive form of demographic information but are useful for conducting environmental security applications requiring estimates of economic capacity and quality of life issues within specific regions. Population density maps also provide a quick visual understanding of relative population density: A soldier or SME can quickly see how close people live to each other in unfamiliar areas by comparing them to familiar places.

However, generic population density maps do not provide useful measures for determining civil-military operations for two reasons: Lack of specificity about particular population attributes, and the scale of operation effect. A population density map doesn’t explain how many young or poor or female or specific tribal members live within a village. A village slightly more dense in population might have many more resources or wealth than a nearby village. Also, population density maps are constructed with a spe-

cific scale in mind. The population density value of a location is based on the estimated number of people within a specified distance. Maps will look different if the distance is 10 or 100 km. The utility of a population density map will be based on the scale of the SCA question being answered. For example, if people are capable of traveling five km to fetch water, a population density map with a distance of five km would be most accurate to answer questions regarding the utility of existing or new wells. Also, standard density algorithms ignore natural features that block travel or render space uninhabitable, which distorts the utility of the maps.

#### *1.8.3.2 Census enumerations*

Census enumerations are counts of people and their attributes within defined political boundaries. A simple census might only count the people and adults in each village, while a complex census could enumerate dozens of attributes, including measures of income, wealth, health, and access to state infrastructure, interpersonal relationships, and education. Complete censuses can only safely occur in no- or low-conflict regions of a country. A census can only be complete when it contains information about each person in the state. While the information is collected house by house, these enumerations are distributed to tracts, municipalities, or counties depending on how much privacy or secrecy is desired. Census enumerations are almost always collected by the state, often with the help of the United Nations Statistical Division, or the U.S. Census Bureau International Programs Center for Demographic and Economic Studies. An accurate and complete census provides a level of detail that can ensure that state, NGO, or civil-military resources are delivered to its citizens based on the goals of the organizations.

Neither the relative completeness of the census nor the comprehensiveness of the census variables can determine whether a government is trying to be legitimate. However, without a complete and transparent census, it is impossible to accurately measure whether government programs are corruption free and serving all citizens, including those citizens not in the government's power base. To understand the effectiveness of a census, the following questions should be asked: How often are censuses conducted? Are there provinces or districts not collected or collected with less accuracy? Are disadvantaged ethnic or social groups directly or indirectly improperly represented in the census? Are wealth and income attributes not collected? These and other questions are critical to allow monitoring of government legitimacy.

### *1.8.3.3 Household surveys or microdata*

Household representations or surveys are called microdata by demographers. Microdata recreate all the questions from a census or survey household by household. Demographers use microdata when they want to understand how household variables are collocated with each of the other variables. For example, microdata can tell the proportion of teenage Hispanics in households living below the poverty level, while census enumerations cannot do so without potentially committing “ecological fallacy”. People commit ecological fallacy when they assume individual members of a population have the average characteristics of the group at large (Robinson 1950). Also, census enumerations almost always contain fewer demographic variables than the microdata from the same census. Since microdata contain more variables household by household, the statisticians group households into larger geographic areas than the census enumerations from the same survey.

Contractors often perform household surveys when census collection hasn’t recently been performed in an area of interest with an immediate critical need for demographic information, such as Afghanistan. After a long discussion between this section’s first author and the company hired to conduct survey households in Afghanistan for 2009, it was determined that the resulting product could be used as a non-statistically relevant version of microdata. The company could not perform survey collection in many of Afghanistan’s districts due to the violence in those Afghan communities. The company also did not have a detailed street map or building map of Afghanistan in order to develop a stratified random sample of households to survey. On the plus side, this household survey allowed the authors to easily determine which tribal maps provided were so obsolete as to be operationally useless. The authors hope that COCOMs will require future household survey sampling design to be assisted by researchers familiar with the AOI’s latest available tribal and infrastructure maps. Additional value would be added if the assisting researchers also had a background in spatial statistics.

### **1.8.4 Integrating population and social group information for analytical purposes**

All data, from the most authoritative census projects to the most nebulous or ambiguous social media, from open source information to “hunter-gatherer collected,” from accurate and precise detailed surveys to out-

dated, vague and possibly obsolete information must be seamlessly accessible in forms consumable by subject matter experts. As Chapter 1.4 articulates, SCA in COCOMs is evolving from subject matter experts providing judgment on their personal AOI to more quantitative approaches including simulation models and multi-disciplinary collaboration. Chapter 1.5 demonstrates the potential complexity of future multi-disciplinary SCA collaboration. It is difficult to imagine a data system that can easily manage the complete integration of the Stability Model, with all the data seamlessly input into simulation models as well as ensuring that all new socio-cultural information is automatically directed to the proper subject matter experts and simulation models.

Components of such systems are being designed at this time. For example, the U.S. Army's 95<sup>th</sup> Civil Affairs Brigade is standing up the Civil Affairs Operating System (CAOS) that will allow its troops to immediately upload social-cultural and mission specific information using smart phones in their AOI. While such technology has been used in the past, CAOS allows for new surveys and forms to be pushed to its troops on very short notice. Once CAOS and similar data collection and distribution systems mature, information previously "below the noise floor" (Chapter 1.6) can be integrated into a comprehensive socio-cultural knowledge base. PACOM's structured analytics approach (Chapter 1.4) is an excellent example of thematically organizing socio-cultural information.

### **1.8.5 Using demographic data in the future**

This section discusses the various types of socio-cultural information and their utility for stability operations before and after they have been rectified to a solid foundation of demographic information.

We accept the NDU (2011) premise that a population must see their own political system as legitimate for a stabilization mission to be successful, and that we need to understand who the entire population is, not just the social groups maintaining the current government. Long term stability requires political settlement and reconciliation that include all social groups, including defeated belligerents. The process of constructing a valid census by a partner nation is, in and of itself, a powerful tool for legitimatizing a political system. An accurate census requires coordination and networking among people ranging from those in the seats of power down to those in the smallest hamlets. That communication network, if maintained and

strengthened, increases collaboration between the national government and the furthest reaches of that state.

Explicit or implicit demographic data should be the foundation of all population-centric civil-military decisions. Without existing accurate census data, additional demographic data collection requires extensive, dangerous, and expensive surveys. When assisting capacity development well “left of the bang,” we should encourage accurate census taking by all partner nations. The cost and quality of field surveys during conflicts reduce our ability to assist. Accurate demographic data provides a great “base map” that other quantitative and qualitative socio-cultural collected data can be located.

Looking five or ten years into the future, we need to change the paradigm at which we think about socio-cultural information. COCOMs and military units, such as the 95<sup>th</sup> Civil Affairs Brigade, are already augmenting “expert stored” information to include thematically stored information (see Chapter 1.4 for the best practices demonstrated in this White Volume). Thematic data layers are the best conduit for communicating complex socio-cultural information, especially to non-scientists, and thematic information is the easiest to incorporate into traditional geographic information analysis tools. However, it reduces the long-term utility of the information and requires loss of information to convert many forms of open source information, social media (Chapter 1.7), and “hunter gathered” (Chapter 1.6) data. The main drawback of thematic maps is that the information is stored in geographic coordinates, not in the people. People are mobile, and households change when their environments change. We need to store socio-cultural information with simulations of the people and households, with some of their attributes containing the best estimate of their past, present, and future geographies. This chapter will use the term “human topographic map” to describe such a human-centric approach to data storage.

Demographic information has value not only in understanding a population as it is today, but as it may be in the near future. In order to develop useful models of future demographics, we need an understanding of the variables dictating demographic changes. New technologies are allowing greater understanding of communication networks among developed populations. Recent analysis of telephone calls within the U.S. (Calebrese 2011) has been correlated with population mobility as gathered from Cen-

sus data. As microdata on the usage of communication technologies such as telephone, SMS, and social networking become easier to collect for governed and non-governed regions, our ability to predict future demographics will also continue to grow.

The rest of this chapter will explore early research in the development of a human topographic mapping environment developed by the U.S. Army Engineering Research & Development Center (ERDC).

### **1.8.6 Digital Populations (DigPop) and the Rapid Model Prototyping System (RaMPS)**

Digital Populations (DigPop) and the Rapid Model Prototyping System (RaMPS) co-evolved together to provide a SCA simulation modeling environment. DigPop provides the human topographic map while RaMPS is a set of tools which can be used to quickly define and implement socio-cultural processes and behaviors. DigPop research began in 2001, while RaMPS tools are still in alpha testing. DigPop simulates every person and household in the AOI using all three forms of demographic data: population density maps, census enumerations, and household surveys as input. DigPop output is then used as a human topographic map to store other socio-cultural information. Figure 14 shows ERDC's test database. ERDC simulated a developing nation in Monterey County California, which is shown within Google Earth. Each icon in Google Earth represents a household's location with important attributes represented as size, color, shape, and symbol.

DigPop is designed to incorporate the errors and known uncertainties of all forms of data into the data structure. For example, should the statement "20–25% of teenage men in the XYZ tribe in ABC district are currently supporting insurgent activities" be added to DigPop using RaMPS tools, the statement will be accurately reflected by having 20–25% of teenage men tagged as supporting insurgents. (DigPop's data structure contains many equiprobable realizations of population location so that some realizations will have 20% of the tribe's teenage men supporting insurgents while other realizations will have other proportions.) At any time, any population attribute can be exported to a density map computed by a density kernel appropriate to the SCA scale. "Hunter gathered" (chapter 1.6) information, social media (see Chapter 1.7), and open source information can all be potentially attributed in this data structure.

For example, social and journalistic media is currently being collected from all over the world. Several of the household surveys in Afghanistan asked about TV and newspaper preferences. Realizing these surveys in DigPop would allow TV and newspaper information to be tagged to the households in areas of interest using RaMPS tools.

So far, only demographic and some infrastructure attributes have been incorporated in DigPop data structure: stress tests on operational data have not yet been performed to determine computation resources necessary to store an area of interest. The primary disadvantage to the DigPop system is that it has larger data storage requirements than traditional geographic information systems.

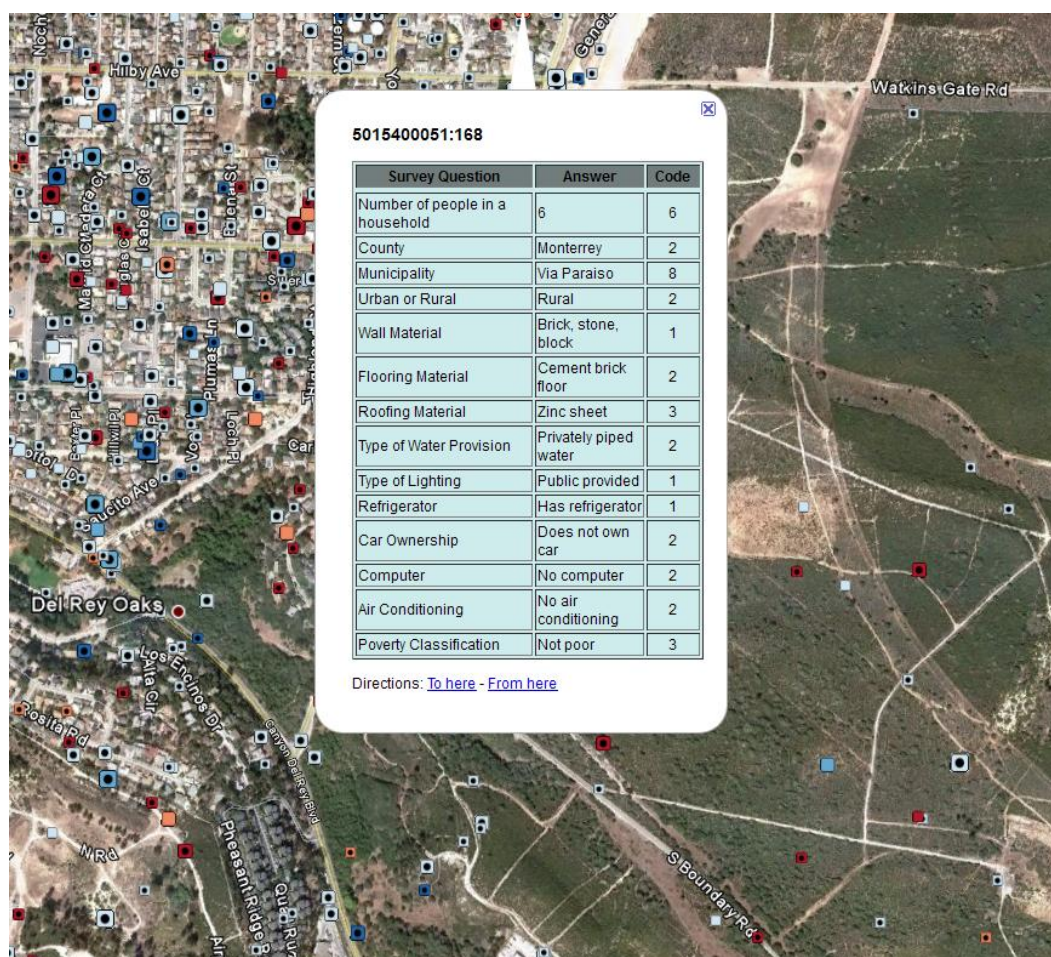


Figure 14. Microdata household characteristics in Google Earth.

Some socio-cultural information cannot be described as attributes. For example, “50–70% of farmers caught with opium will bribe the police to prevent arrest” cannot be quantified in DigPop. Instead, that information



would be stored as a process. Socio-cultural processes would be stored as “lambda functions” in RaMPS. Lambda functions are software algorithms stored as data in a computer program. RaMPS is a set of programming modules on top of the NetLogo agent based modeling system. NetLogo has some of the functions contained in traditional geographic information systems, but has superior temporal modeling capabilities. RaMPS contain a rules firing system within resulting agent based simulation models that attributes agents with the results of the processes whenever the conditions are appropriate. ERDC expects RaMPS simulation models to be straightforward models with simple sets of rules to ensure that decision makers don’t treat them as black boxes. Ideally, all socio-cultural attributes and processes will be quality controlled by COCOM subject matter experts to ensure the results reflect the collaboration of the social scientists and subject matter experts used to understand a domain problem.

This ongoing research represents one of many tools and capabilities that must be developed in order to implement GEN Flynn’s Reconnaissance, Surveillance, and Intelligence paradigm. Understanding the complex web of social groups’ environments and interactions will require an information system capable of integrating all forms of socio-cultural information.

### **1.8.7 Bibliography**

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## 2 Global Patterns and Trends in Armed Conflict: Theories and Evidence

*Dr. Christopher Rice*

### 2.1 Introduction: The global decline in armed conflict

In the press of daily events, it is possible to lose sight of how we arrived in the current global security environment. When charting future courses of action, designing future strategies, and conducting force planning, it is natural for our plans to be driven by recent experience. Therefore, it is important to consult the historical record of armed conflict whenever possible, with scientific measurements and analysis, to balance our perspectives on what the future security environment may hold with an empirically based understanding of the past beyond our immediate experience. This paper is intended to facilitate that consultation.

In the years since WWII, the global security environment and the armed conflicts that rise out of it have evolved rapidly. War among the advanced industrial nations is a distant memory; the colonial empires they fought to build and defend have disappeared; the Cold War and its many proxy wars have ended. Interstate warfare (i.e., international armed conflict between states) has become exceedingly rare, to be replaced by intrastate conflict; societal warfare, including civil wars, secessionist movements, and violent ethnic-based conflicts. This category of wars afflicts the poorest nations most frequently; societal wars are persistent, bleed across borders, and resist permanent solutions.

Figure 14 maps three dramatic trends in warfare after WWII: 1) interstate wars have been far less frequent and far less destructive than anyone could have expected in 1946; 2) for over 35 years (1955–1991) societal wars multiplied and spread, ravaging most of the developing world; and 3) this era of spreading conflict was followed by an equally dramatic 60% decline in the magnitude of armed conflict. This decline was due to an array of causal factors including: the end of the Cold War, political and armed deterrence, the spread of democratic government, changing public attitudes towards warfare, collective action by international organizations, improving socio-economic conditions, and the spread of dense international commercial

ties. There are no guarantees that this hopeful trend will continue; there are many obvious ways in which it could be reversed. But regardless of the future course of events, a nuanced understanding of the drivers behind this systemic decline in warfare is a vital component of the knowledge required to promote global stability and the long term national security interests of the U.S. Developing this understanding in turn requires developing a working knowledge of academic research within the conflict and peace literature.

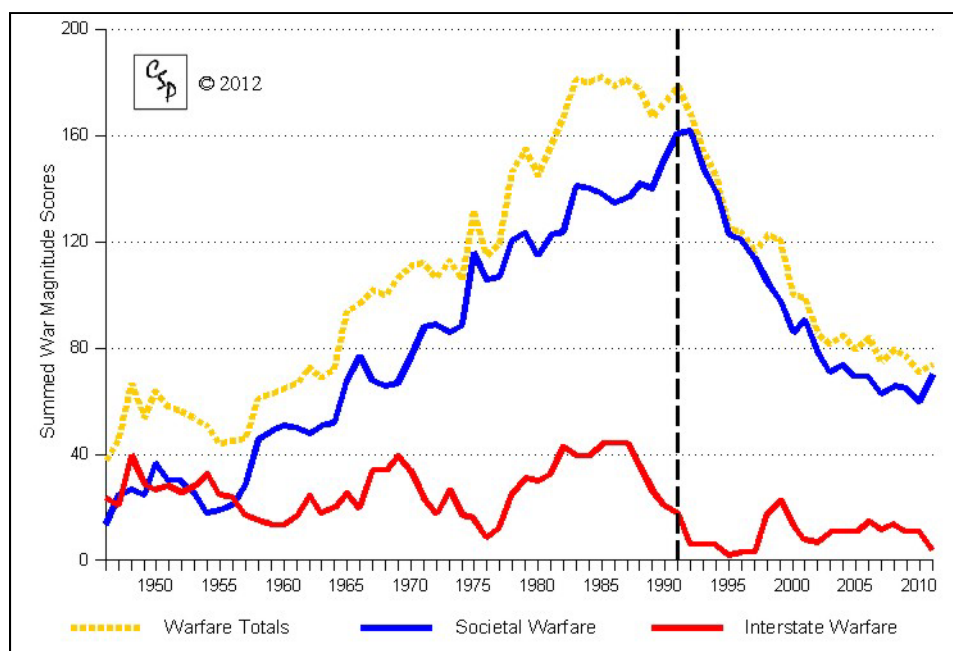


Figure 15. Global trends in armed conflict, 1946–2011.<sup>1</sup>

A brief summary of implications that could be drawn from this literature includes the following:

1. For the first time in history, democracy is the dominant form of government among the world's nations; a preponderance of evidence indicates that this makes the world a safer place. But the transition to democracy is a labor of generations, often accompanied by societal wars and reversions to autocracy before a fully functioning democracy is created. Like the 50 United States, the nearly 100 sovereign democratic nations of the world are individual laboratories of government where the particular institutions and even the meaning of the word democracy vary widely. Strategies of democracy promotion must be evaluated

<sup>1</sup> CSP, (2011), 4.

against these realities. Strategic patience is required, thinking in terms of generations, not U.S. political cycles. Instability and conflict have historically accompanied the transition to democracy and must be accepted as part of any long term strategy or forecast. And local cultural norms—not outside incentivizing—are most important in determining the rate of progress and the final form that democracy will take.

2. There is confirmation here that security capacity building in poor nations is among the most cost effective measures available for promoting global stability, including the development of their capacity to contribute to international peacekeeping missions. The persistence and recurrence of societal conflicts creates a powerful incentive to “get it right the first time” when approaching conflict resolution. During post-conflict stabilization missions, the interactions between host nation governments and U.S., U.N., and other international militaries and development agencies have been fraught with corruption and waste, to the peril of mission objectives. This is an endemic problem with a long history, demanding thoughtful analysis and new solutions.
3. Public and elite attitudes in most nations increasingly disapprove all forms of armed violence; the political costs of waging war, taking lives, and appearing to be the aggressor have increased. Establishing and maintaining legitimacy for the employment of armed force will continue to increase in importance; the intelligent and rapid use of information and messaging will become increasingly vital to mission success and will require new organizational structures and capabilities.
4. Demographic transitions from young, rapidly growing populations to slower growing and aging populations are likely to be accompanied by greater political stability and a change in a nation’s willingness to suffer casualties in armed conflict. These transitions can be anticipated several decades in advance, providing important long range planning parameters.

There is a paradox related to forecasting in many areas within the social sciences; methods of pattern recognition and statistical prediction are more difficult to apply in the short term than they are in the long term. The objects of study are after all human beings, who know they are being studied and will consciously choose courses of action precisely for the purpose of defying prediction by contemporaries. But over the long run these variations average out; trends over periods of decades can be discerned and incorporated into long term planning to good effect. This principle clearly applies in the fields of economics, demographics, conflict studies,

and elsewhere. In other words the research literature outlined here is of greater relevance to the J5s of the world than to the J3s.

What follows is not a definitive treatment of the causes of armed conflict; many of the theories and much of the data discussed here are subjects of ongoing academic debate. Rather, it is intended as an introduction and quick reference guide to a broad and diverse body of scientific research, and seeks to highlight the importance of the conflict and peace literature to audiences in the national security policy community; especially those engaged in national and theater strategic planning, doctrine development, and force design.

In section 2.2 we will examine several empirical measures of warfare during the post-WWII period, familiarizing ourselves with the historical trends in armed conflict and the methods by which they have been measured. In section 2.3 we will delve into some of the principal findings of conflict researchers; their theories of the factors that cause or contribute to armed conflict, the factors that militate against conflict, and the empirical evidence supporting their arguments. In section 2.4 we will consider some of the potential security policy implications of this body of research. Appendix C outlines the basic data elements employed by conflict and peace researchers and highlights the most important data sources and introductory readings.

It is important to acknowledge that the much heralded decline of interstate wars and high-intensity conventional combat has not been accompanied by the disappearance of the military forces to wage them. Technologically advanced nations with ambitions of regional dominance and territorial gain continue to build military capabilities to advance their goals. Terrorist organizations are not disappearing, and the proliferation of WMD technologies remains a severe threat with no end in sight. The research described here does not document trends in these types of threats and worst-case scenarios. What it does provide are very real policy lessons from the majority of armed conflicts that have actually been fought over the past 65 years.

## **2.2 Documenting the trends in armed conflict**

The conflict research community has spent several decades of painstaking effort in parsing the historical record to build datasets on the incidence of warfare and related variables. These datasets allow us to make evidence-

based statements about historical trends in armed conflict and better assertions of what the future may hold in store. Much of this evidence runs counter to conventional wisdom; this section will briefly outline the empirical measures of armed conflict since WWII.

### 2.2.1 Number of conflicts

The first statistic cited in many conflict studies is the number of armed conflicts per year. The post-WWII trend as reported in the UCDP/PRIO Armed Conflict Dataset is shown in Figure 16 below. The red band represents “wars” with battle death totals exceeding 1000 deaths per year, while the yellow band represents “minor” conflicts with battle deaths in the range of 25–1000 per year.

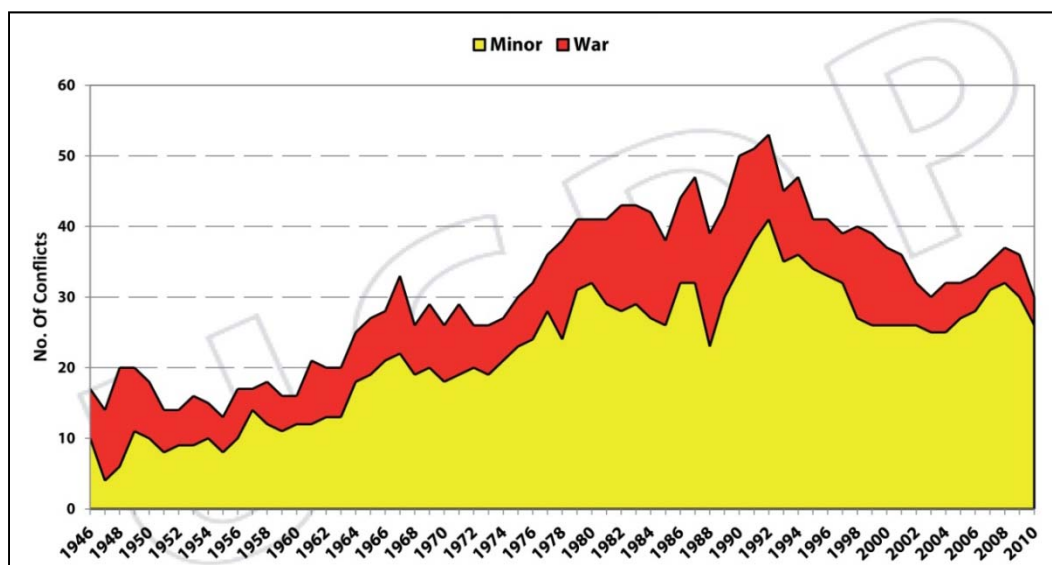


Figure 16. Armed conflicts by intensity, 1946–2010.<sup>1</sup>

Concealed within Figure 16 is another conflict trend—a change in the type of wars being fought. The sustained post-WWII rise in the number of conflicts was due to an increase in societal warfare, i.e., intrastate conflicts including civil wars (i.e., fought for control of the state), secession movements, or violent ethnic clashes. On average, intrastate conflicts last longer and recur more frequently than interstate conflicts. The Westphalian system discourages outside interventions, and the evolution of international mechanisms to break cycles of violence within sovereign states has progressed slowly. The number of intrastate conflicts began to slowly decline

<sup>1</sup> UCDP/PRIO, (2011).

after the end of the Cold War with new societal conflicts becoming rare; however, the reemergence of old societal conflicts remains common.

Civil war outcomes vary greatly by region. In Sub-Saharan Africa, rebels won nearly 50% of the civil wars fought between 1980 and 2007. In East Asia during the same period, not a single government was defeated by insurgents; the greater wealth and capacity of Asian states was apparently decisive in all cases.<sup>1</sup>

For the first 25 years following WWII there was an average of approximately six ongoing interstate conflicts (including rebellions against colonial powers, sometimes referred to as “extrastate” conflicts). Since then, the incidence of interstate conflict has declined to an average of less than one per year in the new millennium; this trend is illustrated in Figure 17.

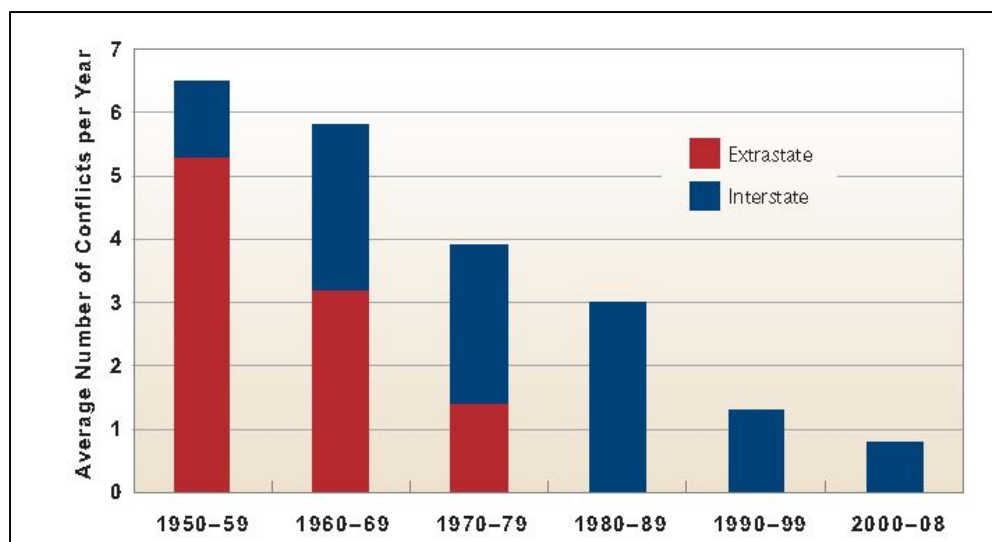


Figure 17. Average number of international conflicts per year, 1950–2008.<sup>2</sup>

Virtually no one expected that the cataclysmic era of the two World Wars would be followed by what is often referred to now as the Long Peace. As Steven Pinker notes, the post-WWII era is remarkable for a number of readily anticipated events *which have not happened even once*: 1) the use of nuclear weapons in anger, 2) wealthy industrial nations (e.g., OECD member states, including most of Western Europe) fighting each other, 3)

1 HSRP, (2011), 55.

2 UCDP/PRIO, (2011).

a developed nation expanding its territory by conquering another nation, and 4) an internationally recognized state disappearing through conquest.<sup>1</sup>

Measuring the trends in warfare based on the number of armed conflicts has a number of limitations, the most obvious being that all conflicts are not created equal. A minor ethnic conflict that barely crosses the reporting threshold of 25 battle deaths per year is treated as the statistical equivalent of the Vietnam War in 1968 (the year of the Tet Offensive).

### 2.2.2 Number of battle deaths

Another important statistic of armed conflict is the human toll as measured by the number of battle-related fatalities. Shown in Figure 18, this statistic paints a different picture of the trend in armed conflict during the post-WWII era. The great majority of battle deaths over the past 65 years were suffered in a small number of interstate wars, due to the employment of large field armies and arrays of heavy weaponry in those conflicts. The far more numerous societal wars during the period were typically fought by lightly armed irregular forces, leading to far smaller death tolls.

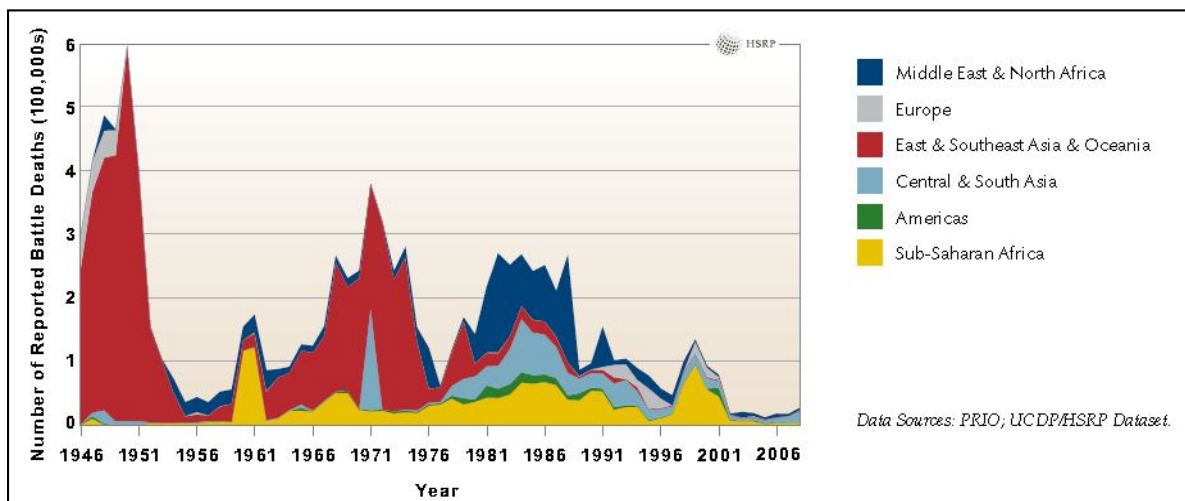


Figure 18. Battle deaths in armed conflicts by region, 1946–2008.<sup>2</sup>

Battle deaths prior to 1975 were dominated by wars in East Asia, including the Chinese Civil War, the French-Vietminh conflict, the Korean War, and the Vietnam War. Following a border conflict between China and Vietnam in 1979, the East Asia region has been remarkably peaceful. During the

1 Pinker, (2011), 249-51.

2 PRIO, (2012).



1980s the Iran–Iraq war and the Soviet invasion of Afghanistan were responsible for the greatest losses of life. Sub-Saharan Africa endured a steady tide of armed conflict and large numbers of battle deaths for over 40 years from the late 1950s to the early 2000s; historically low death tolls have prevailed since the end of the “Great African War” in 2003.

Figure 19 presents another version of the battle death statistics showing the average number of battle deaths per conflict per year. This graphic drives home the point that interstate (here labeled as international) conflicts are generally far more deadly than societal conflicts; it also conveys the fact that even interstate conflicts have become much less deadly in recent decades. One element in this story is the advent of precision munitions, which have greatly reduced civilian loss of life in Iraq and Afghanistan as compared to earlier U.S. wars in Korea and Vietnam.

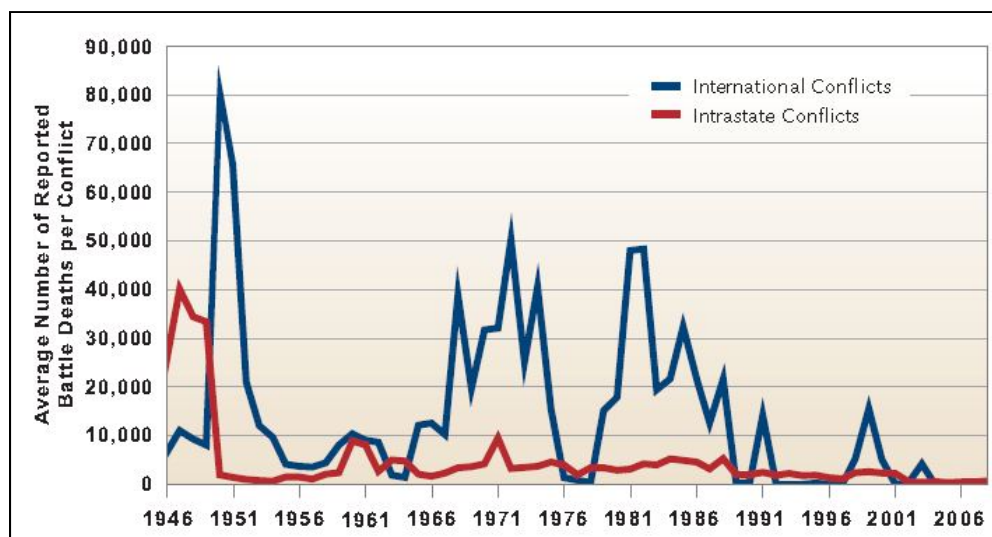


Figure 19. Average battle deaths by conflict type, 1946–2008.<sup>1</sup>

### 2.2.3 Conflict magnitudes

Another useful method for measuring the historical trend in armed conflict was developed by the Center for Systemic Peace (CSP), in which a “magnitude score” is calculated for each armed conflict based on its impact on human resources (via death, injury, violent crimes, and other trauma), human habitation (via destruction of homes, internal displacements, refugees), societal networks, environmental quality, infrastructure, resource flows, and overall quality of life. These magnitude scores are designed to

<sup>1</sup> UCDP/PRIO, (2012).

be comparable across time periods and types of conflict, and are approximately additive (e.g., a pair of magnitude three conflicts is roughly equivalent to a single magnitude six conflict).

The sum of annual conflict magnitude scores is shown in Figure 20. This paints a third picture of the trends in armed conflict, by combining loss of life, physical destruction, societal disruptions, and other human trauma into a single conflict metric. The red line depicts the global magnitude of all interstate wars, while the blue line represents all of the intrastate conflicts.<sup>1</sup> By this measure armed conflict saw a sustained increase from 1955 to the end of the Cold War. When compared to Figure 16 (i.e., the trend in number of conflicts) both the increase in warfare prior to 1991 and the post-Cold War decline were much greater in percentage terms.

Most of the post-WWII conflicts were triggered by the retreat of the European colonial empires, both in the form of independence wars against colonial powers and post-independence wars between rival elites struggling to fill the power vacuum left by the departing colonial regimes. The opposing sides in these conflicts were frequently sponsored by the U.S. and the Soviet Union as an extension of their Cold War rivalry, contributing both to the lethality and the duration of conflicts. According to one study, conflicts driven by the clash of Cold War ideologies and superpower sponsorship lasted three times longer than conflicts where this was not the case.<sup>2</sup> Sponsorship included not only weapons, but also education, indoctrination, training, military advisors, and sometimes troops.

Although battle deaths (shown in Fig. 17 and 18) declined substantially over the same period of rising conflict magnitudes, the increasing magnitude of conflict is not necessarily a misleading statistic. The societies affected by these conflicts were overwhelmingly in Africa and Southern Asia; their development ground to a standstill for several generations and large parts of these regions are still characterized by economic stagnation and political instability.

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1 The CSP dataset counts colonial liberation wars as intrastate wars; other major conflict research datasets score them as a category of interstate conflicts.

2 Hironaka, (2005), 50.

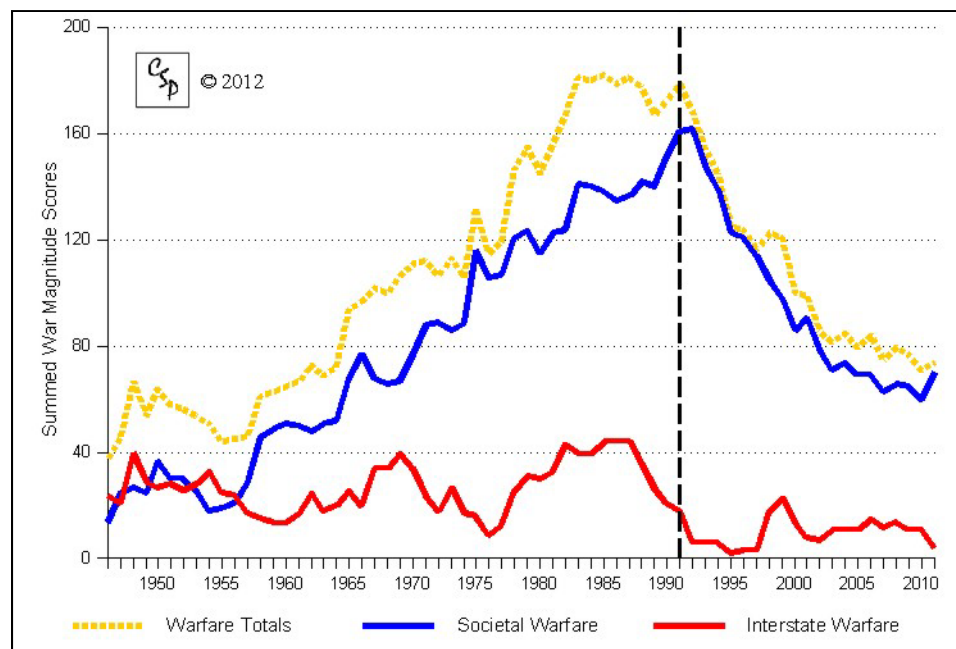


Figure 20. Global trends in armed conflict, 1946–2011.<sup>1</sup>

The most interesting segment of Figure 20 is the post-Cold War decline in conflict; the global magnitude of warfare has decreased by over 60% from its peak in the mid-1980s; in 2011 it had reached its lowest level in 50 years. Much of the recent conflict and peace literature is focused on identifying the systemic factors that contribute to this decline; the outlines of this research will be presented in Section 2.3.

## 2.3 Theories and evidence

This section will describe some of the principal causal factors associated with armed conflict, including factors believed to increase and factors believed to decrease the likelihood, duration, or intensity of conflict. Each sub-section will present a brief description of a theoretical causal mechanism, followed by a description of and/or references to the empirical evidence supporting the theory. It should become apparent that these theories are not mutually exclusive, that supporting evidence derives from a variety of data sources and research methodologies, and that future improvement in both the science and the data are needed. All of these theories have detractors who have marshaled contrary evidence. This list of theories and evidence for the causes and inhibitors of armed conflict is neither complete nor definitive; readers should consult the suggested readings, footnotes, and reference section for more information.

<sup>1</sup> Center for Systemic Peace, (2011).

### **2.3.1 Governance failure**

#### *2.3.1.1 Theory*

The most fundamental governance failures occur when a government is unable to perform the role of Hobbes' Leviathan, by maintaining an impartial rule of law and a monopoly on the use of lethal force. In states that are too weak to perform this basic function, any number of precursors can lead to societal conflict: lack of jobs and economic opportunity, rising food prices, ethnic rivalries, discrimination, human rights violations, highly publicized murders or suicides; even inflammatory political rhetoric. Opportunities for rebellion multiply with government failures to provide basic public services such as electricity, water, sanitation, and health care. The ability for states to provide security and basic services will increase along with their means to pay for it (i.e., societal income as measured by per capita GDP).

#### *2.3.1.2 Evidence*

Based on this theory, the incidence of armed conflict should be negatively correlated with societal income. The actual empirical relationship is illustrated in Figure 21. In this graphic all nations in the world are ranked by per capita GDP, and then divided into quintiles ranging from the poorest 20% of nations (the lowest quintile) to the wealthiest 20% (the highest quintile). The graph shows the sum of the magnitudes of armed conflicts occurring within each quintile over the post-WWII period. The poorest 20% of nations (represented by the red line in the left hand graph) experienced the highest levels of conflict throughout most of the post-WWII era while the wealthiest 20% of nations (represented by the dark blue line in the right hand graph) experienced the least warfare, with virtually all of their involvement consisting of overseas deployments of military forces for policing actions and other interventions. Numerous statistical studies have confirmed the robust link between low societal income, weak security forces, and civil wars.<sup>1,2</sup>

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1 Fearon & Laitin, (2003).

2 Blattman & Miguel, (2010).

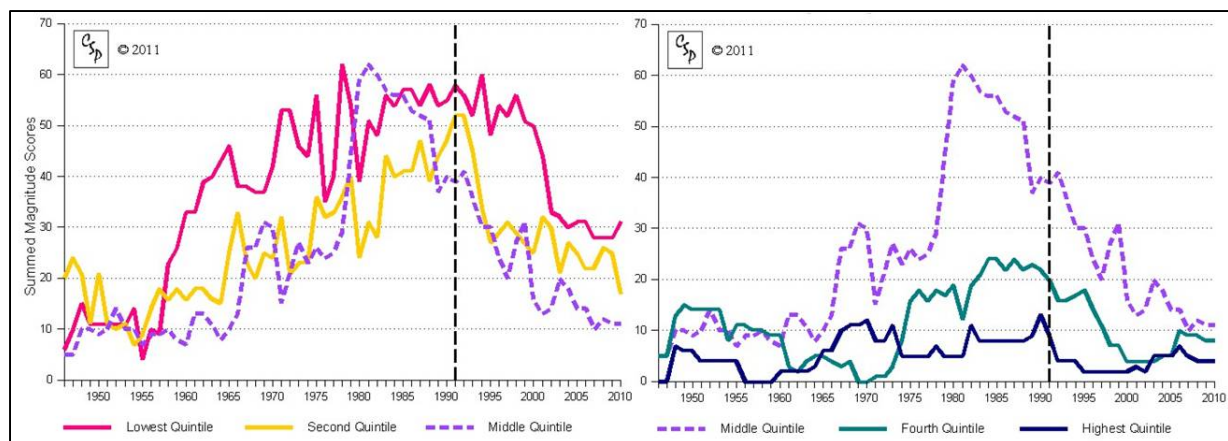


Figure 21. Warfare magnitude and societal income, 1946–2010.<sup>1</sup>

Note that the incidence of conflicts depicted in Figure 21 was relatively high even in the second and third income quintiles. The level of income required to provide good governance is not a fixed value; it varies with the quality of political leadership and local conditions. Periods of rising income can easily be followed by instability and conflict if expectations for continued economic growth are disappointed.

Where populations live close to subsistence levels, even small economic disruptions can lead to famine, forced migration, and conflict. Some researchers have noted a correlation between onsets of conflict and extremely low per capita measures of water supplies and arable land.<sup>2</sup> Populations in low income countries are likely to be sensitive to prospects for a Malthusian crisis in their future; sudden or sustained negative income shocks (e.g., falling world prices for commodity exports) could act as a trigger for societal conflict. Correlations between income shocks and armed conflict have been observed in a number of empirical studies.<sup>3,4</sup>

### 2.3.2 History of conflict and neighborhood effects

#### 2.3.2.1 Theory

Once a nation has been afflicted by societal warfare, the probability of future conflicts is permanently elevated. Even if the original risk factors for conflict diminish, a structural disposition towards armed violence can take

<sup>1</sup> Center for Systemic Peace, (2011).

<sup>2</sup> Cincotta, Engelman, & Anastasion, (2003).

<sup>3</sup> Miguel, Satyanath, & Sergenti, (2009).

<sup>4</sup> Chassang & Padro-i-Miquel, (2009).

hold of a society; blood feuds and grievances accumulate, arms caches litter the countryside, and experienced former combatants provide a ready cadre to reconstitute a fighting force.<sup>1</sup> In many “terminated” conflicts, some combatant groups never disband; they only temporarily leave the field to recover their strength or escape a superior adversary. These groups may migrate across international borders, assume the guise of legitimate security forces, or turn to trafficking, protection rackets, and other criminal activities. The fluidity of the irregular armed forces involved in most societal warfare contributes to “neighborhood effects” by which conflicts migrate or spread from one state to its neighbors.<sup>2</sup>

### 2.3.2.2 Evidence

If the theory of persistent societal warfare is true, then we would expect to see evidence that intrastate wars last longer and recur more frequently than interstate wars. Multiple empirical studies have documented that societal conflicts do in fact last longer and recur more frequently.<sup>3,4</sup> In Figure 22 we see that peace treaties for intrastate wars have historically been much less durable than those for interstate wars.

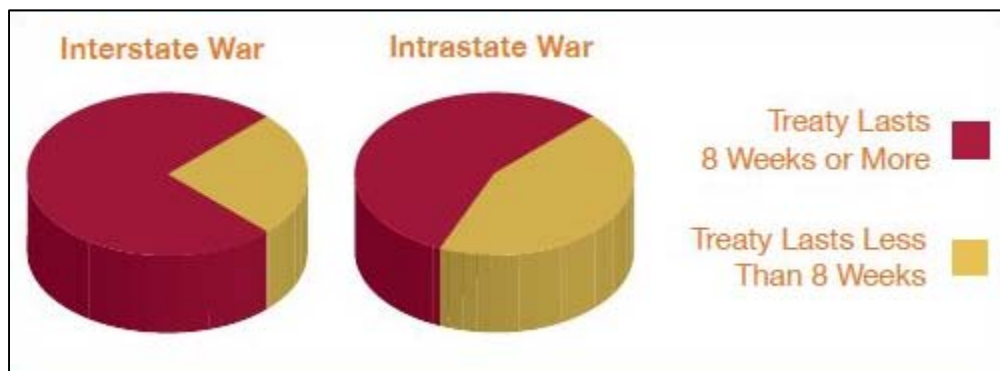


Figure 22. Peace treaty duration by conflict type, 1945–2004.<sup>5</sup>

1 HSRP, (2011), 58.

2 Gleditsch, (2007).

3 Regan & Aydin, (2006)

4 Hewitt, (2012), 25-30.

5 Gartner, (2012), 73.

### **2.3.3 Natural resources**

#### *2.3.3.1 Theory*

The existence of a “natural resource curse” is well established in the economics literature and its general outlines are well understood; concentrated mineral wealth such as oil reserves provide governments with an easily controlled and easily taxed revenue stream sufficient to finance the government, the security forces, and (depending on the extent of the mineral supplies) even to provide for social welfare programs and consumer subsidies to the populace. Exploitation of the resource requires little effort from the broader society and little development in domestic trade and commerce; furthermore, the government is not dependent on the population for taxes to finance its operations. This discourages the basic dialogue between the government and the governed that leads to the formation of a social contract and the development of effective public institutions.

This is relevant to the incidence of armed conflict in several ways. Because the government lacks adequate incentives to govern fairly and efficiently, it may provoke armed rebellion through corruption and repression. And because the mineral wealth is concentrated geographically and requires little or no popular support to control, it constitutes an attractive target for any armed group capable of seizing it.

#### *2.3.3.2 Evidence*

Michael Ross has authored a series of studies on the natural resource curse, documenting a strong correlation between poor governance, mineral wealth, and civil war.<sup>1</sup>

### **2.3.4 Demographics**

#### *2.3.4.1 Theory*

Societies with total fertility rates (TFR—i.e., the average number of children born to a woman during her lifetime) of six or more will have an average of three or more male children per family. With the advent of modern medicine, majorities of these young males live to adulthood and seek their place in society. But in many cultures the rules of inheritance are based on primogeniture, dictating that the eldest male in each family will

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<sup>1</sup> Ross, (2006).

inherit the family farm or business. Therefore, the second and third (and fourth and fifth, etc.) sons represent surplus labor that must seek employment. Nations with high TFRs can double their population every 20 to 40 years and are likely to struggle to create jobs at an equal rate. In these environments young men, equipped by nature with a disposition towards displays of physical prowess and dominance, form a highly combustible source of fuel for armed conflict—the more concentrated, the more dangerous. Based on this theory, high concentrations of young adult males (relative to total population) should be correlated with the incidence and severity of intrastate conflict.

#### *2.3.4.2 Evidence*

This topic receives relatively little attention from the core of the conflict research community, but has been examined closely by demographers and other scholars. In Figure 23 we see the results from one such study, showing the relationship between male youth bulges and deaths from civil wars during the years 1989–1998. Each point in this scatter plot represents an individual country; there are 153 countries, including all nations with a population over 1 million in 1990. The positive slope of the scatter plot shows the clear correlation between high concentrations of 15–29 year old males and the number of deaths in civil wars during the decade. The horizontal line of points in the lower left corner represents those countries that experienced no civil war.

Two stark empirical regularities emerge from Figure 23: 1) no nation with a male youth ratio less than 50 experienced a civil war during the decade of the 1990s, and 2) no nation with a male youth ratio greater than 75 managed to avoid civil war.

### **2.3.5 Democracy**

#### *2.3.5.1 Theory*

Democratic governments are organized around processes of dialogue and debate; it is in the DNA of democracies to come to the conference table when disagreements arise. The explicit rules and cultural norms of democratic societies work against armed conflict. This mechanism works on two levels; both interstate and intrastate wars may be reduced by the spread of democracy.



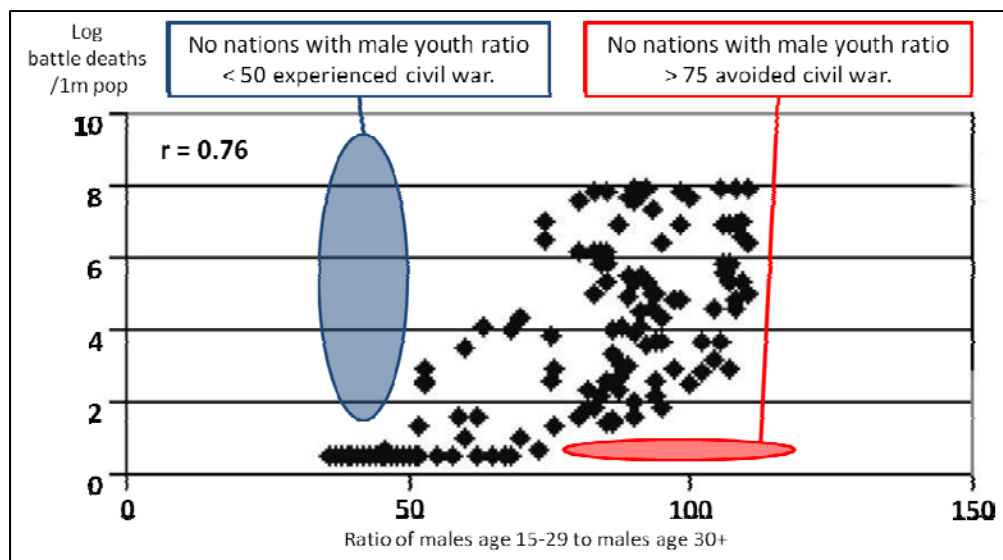


Figure 23. Male age composition and conflict severity.<sup>1</sup>

On the international level, democracies share a common expectation that negotiation will form the basis of international relations, at least with fellow democracies. In democracies ordinary citizens have a voice, however indirect, in the affairs of the state. They will calculate their self-interest when considering the prospects of armed conflict and will generally conclude that war is not the best course of action towards another democratic society that can be negotiated with. In non-democratic societies, on the other hand, the decision to fight rests with an autocrat or a small elite who can insulate themselves from most of the negative consequences of war.

On the domestic level, democratic governments provide potential rebels with the means to redress grievances or pursue political control through democratic means. Democracy is also associated with—and reinforces the positive effects of—free market capitalism, which improves the economic prospects of individuals and societies. Democracies are generally more responsive and adaptable than other forms of government, allowing freedom of thought and the evolution of societal norms, providing an important safety valve for tensions that might otherwise devolve into societal conflict.

Autocracies also have mechanisms to maintain political control, through indoctrination, intimidation, violence, and control of information. However, anocracies (mixed forms of government with both autocratic and democratic features) are particularly vulnerable to instability and conflict by

<sup>1</sup> Mesquida & Weiner, (1999).

dint of having incomplete tools of control and incomplete methods for mediation and discourse.

Quantitative analysis of the relationship between armed conflict and governance requires an index of governance; perhaps the most widely used is the Polity IV dataset, under development (through three previous incarnations) since the early 1970s. The Polity index scores each country annually on both the autocratic and democratic attributes of its political system, in the areas of executive recruitment, constraints on executive action, and political competition. Polity scores range from full autocracy (−10) to full democracy (+10), with countries scoring between −5 and +5 labeled as anocracies. These nations mix democratic and autocratic institutions and tendencies in a variety of ways, i.e., by holding popular elections for parliaments with little authority to legislate, or reserving cabinet seats for the military and other privileged constituencies.

Quantitative analysis of the likelihood of conflict between states with selected attributes requires so called “dyad year” datasets. A dyad is a pair of states; a dyad year is an annual observation for that pair of states indicating whether they were at peace or at war with each other.

#### 2.3.5.2 *Evidence*

If the theory of a “democratic peace” is true then we would expect to see that the number of conflicts worldwide would decline as the number of democracies increases. The dashed lines in Figure 24 below mark the close temporal association between the rise of democracy and the post-Cold War decline in armed conflict. The number of democracies increased from 48 in 1989 to 95 in 2011. Cascades of democratization have taken place in Latin America, Eastern Europe, sub-Saharan Africa (although anocracies remain the norm in this region), and a fourth may be beginning in the Arab world.<sup>1</sup>

We would further expect to find that interstate conflicts between democracies are rare or nonexistent; extensive analysis of dyad year datasets indicates that this is almost universally true.<sup>2</sup>

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<sup>1</sup> Marshall & Cole (2011), 17.

<sup>2</sup> Russett & Oneal, (2001), 104-114.

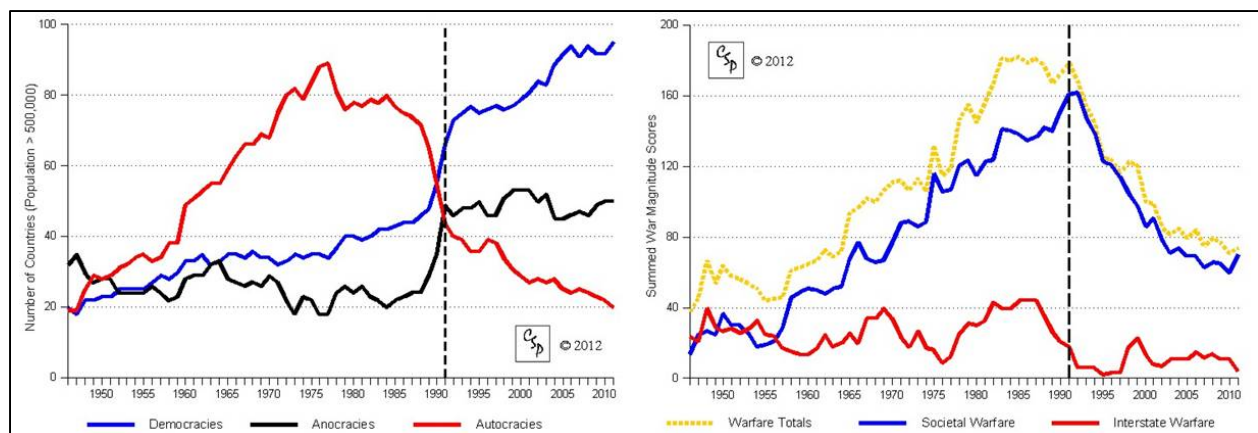


Figure 24. Global trends in governance and warfare, 1946–2011.<sup>1</sup>

If the hypothesis of anocratic instability is true, then we would expect to see a correlation between polity scores and the incidence of armed conflict. A 2004 UCDP study documented the relationship between onsets of armed conflict, male youth bulges, and governance for the half-century from 1950 to 2000. This result is displayed in Figure 25, which illustrates that the probability of armed conflict in any country in a given year reached a maximum of slightly over 8%. This condition applied to countries with anocratic governments (i.e., polity scores near zero) with 45% of their adult male populations in the 15–29 year age group.

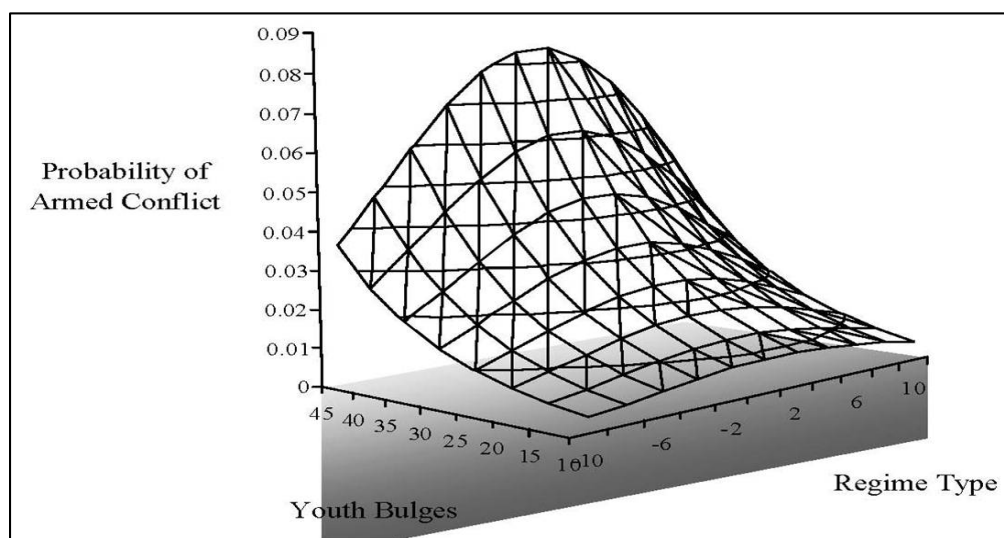


Figure 25. Armed conflict, male youth %, and polity score.<sup>2</sup>

1 CSP, (2012).

2 Urdal, (2004).

The number of anocracies increased from 29 to 48 in the early 90s. CSP research indicates that anocracies experience two times as many civil wars as autocracies and six times as many as democracies. Anocracies are also four times more vulnerable than democracies to military coups and other reversions to autocracy.<sup>1</sup> Although the number of anocracies has steeply increased, there has not been a corresponding increase in conflict magnitudes. This may be attributed to several factors. The end of superpower proxy wars has meant that societal conflict in the new millennium has been less destructive. It has also allowed greater scope for mediation, peacekeeping, and post-conflict stabilization efforts by international organizations, as well as encouraging a modest trend towards professional militaries who avoid political activism.<sup>2</sup>

### **2.3.6 Capitalism**

#### *2.3.6.1 Theory*

Capitalist societies create dense networks of commercial relationships between producers and consumers who derive mutual benefit from the free trade of goods and services. These networks readily extend across international boundaries, tying national economies together in a state of mutual dependence based on integrated supply networks, interlocking portfolios of loans and investments, and shared consumer product markets. Capitalist systems further benefit their citizens and businesses by the creation of property rights and established methods for consultation and appeal to the government if their economic interests are threatened. Through these mechanisms, capitalist societies create built-in antiwar constituencies, whose economic interests will suffer from the physical destruction and disruptions of trade that would occur on both sides of an international conflict.

#### *2.3.6.2 Evidence*

If this theory is true, then we would expect the occurrence of war between pairs of countries to be negatively correlated with the amount of bilateral trade and foreign investment (relative to the size of their economies) between them. Statistical analysis employing dyad year datasets, trade, and

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1 Marshall & Cole, (2011), 12.

2 Marshall & Cole, (2011), 13.

investment statistics has shown strong evidence of this correlation as the theory predicts.<sup>1</sup>

### **2.3.7 Constructivism, internationalism, and the Kantian peace**

#### *2.3.7.1 Theory*

The “constructivist” theory says that over the course of the 20<sup>th</sup> century popular attitudes towards the legitimacy and utility of warfare underwent a fundamental change. The horrors of trench warfare on the Western front during 1914–18 created a sincere desire among political elites and the general public that WWI should truly be “the war to end all wars.” And even though the regimes of Hitler, Stalin, and Mao still lay in the future, a turning point had been reached. The League of Nations was created with the express purpose of preventing wars and mediating conflicts, and even though it failed rather miserably in that respect, immediately after WWII a new, more expansive set of international governance institutions was put in place to pick up where the League left off.

Following WWII the gradual accumulation of democratic governments, free markets, and membership in international organizations has allowed the logic and benefits of peaceful international relations to reveal themselves, much as Immanuel Kant foresaw two centuries before.<sup>2</sup> International organizations assumed increasing roles in reducing armed conflict through mediation, peace operations, sanctions, and moral suasion. Popular attitudes have gradually turned to reject warfare and armed violence.

#### *2.3.7.2 Evidence*

If the theory of changing mores is true, then we would expect to see statistical evidence that other forms of violence besides warfare were in decline, and that these changes were driven by changes in popular beliefs and attitudes. Pinker has presented such evidence for many categories of violence in great detail.<sup>3</sup> If the theory of internationalism is true, then we would expect to see evidence that international organizations directly contribute to reductions in armed conflict. In Figure 26 we see that international peace-keeping operations have proliferated since the end of the Cold War. This closely matches the abrupt downturn in armed conflict during this period,

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1 Russett & Oneal (2001), 125-156.

2 Kant, (1970).

3 Pinker, (2011), 671-696.

although correlation does not prove causation. Multiple statistical studies have found that peace operations reduce the probability that armed conflicts will recur.<sup>1,2</sup>

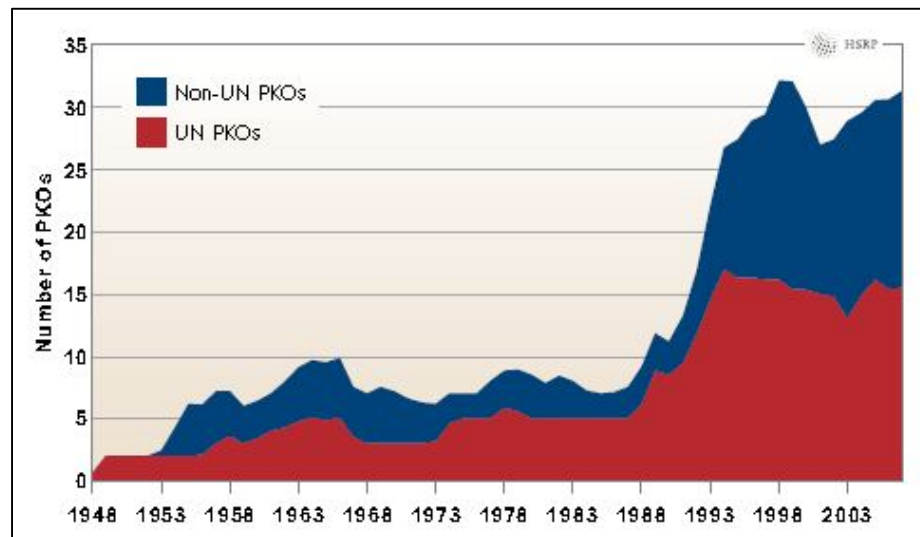


Figure 26. UN and non-UN peacekeeping operations, 1948–2007.<sup>3</sup>

In Figure 27 we see that the number of multilateral sanctions regimes grew rapidly after 1991. This also closely matches the post-Cold War decline in armed conflict. Statistical analysis indicates that sanctions regimes have low rates of success, although this is often attributed to lax enforcement.<sup>4</sup> Nevertheless, sanctions have had a measurable impact in decreasing the duration of intrastate conflicts and remain the principal conflict mitigation tool available to the international community between the extremes of armed intervention and moral suasion.<sup>5</sup>

1 Doyle & Sambanis, (2000), 779-801.

2 Fortna, (2008), 173.

3 HSRP, (2011), 70.

4 Hufbauer et al., (2007), 158.

5 Escriba-Folch, (2010).



Figure 27. Countries targeted by multilateral sanctions, 1948–2007.<sup>1</sup>

## 2.4 National security policy implications

The armed conflict and peace literature encompasses a broad range of topical areas and research methods, with contributions from diverse disciplines including political science, economics, sociology, demographics, psychology, military history, and others. Research findings with security policy implications are far too numerous to list here; what follows is only a partial list of potential implications. Interested readers are encouraged to consult the suggested readings in Appendix C to begin exploring the broader literature.

### 2.4.1 Governance

Autocratic regimes depend upon tight controls on all flows of information, the better to instill loyalty and suppress dissent. Democracies require much the opposite, deriving their effectiveness from the free flow of information and ideas.<sup>2</sup> The impetus of globalization and the proliferation of information and communication technologies favor the spread of democracy, placing autocratic regimes on the political defensive in many dimensions of international competition.

Popular demands for democracy have shown no signs of abating in the information age, with the likely result that new waves of democratization will take place. Changes in governance should occur with relative frequen-

<sup>1</sup> Kreutz, (2010).

<sup>2</sup> Marshall & Cole, (2011), 15.

cy as autocratic and anocratic regimes in the Arab world, Africa, South Asia, and perhaps even China introduce democratic reforms. Over the long run this is a very positive security trend, but in the short run the transition from autocracy to anocracy, along with the continuing churn in the structure of existing anocratic governments, will raise the risks of instability and intrastate wars. Policy makers should take a long view of these developments and avoid adopting unrealistic expectations for quick and seamless transitions to functioning democracy. Many non-Western societies have little or no experience with political freedom, elections, and representative government, and furthermore may not share some of the basic values that shape liberal Western democratic institutions.

#### **2.4.2 Economics**

East Asia has undergone a remarkable transformation, from the most war stricken region in the world for the three decades following WWII, to its current state as one of the more stable world regions and an engine of global economic growth. Indications are beginning to emerge that other developing regions may follow suit as economic growth rates, savings and remittances, trade, and foreign direct investment have grown systemically, even in the face of the current economic crisis. This may portend a trend in which poor countries in Africa and South Asia—as they become a little less poor—will become capable of the basic investments in public services and security that can co-opt, deter, or defeat internal security threats.<sup>1</sup>

Within the “Maslow’s Hierarchy” for nations, the physical security of citizens follows immediately after basic provisions for human sustenance. Many scholars have concluded that the correlation between per capita income and reductions in armed conflict is due to the investments in security and law enforcement capacity that come with a little economic growth.<sup>2,3</sup> This reinforces the idea that long term security assistance, including training and mentorship of developing nation security forces in the principles of civilian control, the rule of law, and human rights, are among the most cost effective security investments available to the U.S. Theatre Security Cooperation Plans and embassy mission plans should be some of the most carefully developed and closely monitored tools in the U.S. security arsenal.

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1 HSRP, (2010), 60.

2 Fearon & Laitin, (2003).

3 Pinker, (2011), 305.



### 2.4.3 Regional considerations

The potential spread of anocratic governments in the Arab world, together with its role as home to half the world's oil reserves, will make this region especially threatening to global security for decades to come. In addition to the threat of internal conflicts, the region is historically prone to interstate wars, which we have seen to be far more destructive than intrastate conflicts. Another destabilizing factor in the region are the well-known dystopian effects of oil wealth, which encourages elites to focus on control of the oil, to buy the loyalty or acquiescence of the population with oil revenue, and to avoid the hard business of creating a social contract, collecting taxes, and governing effectively. Transitions to effective democratic government may be problematic for some of the wealthy oil exporters of the Middle East.

Although Al Qaeda and radical Islamist political groups have failed to mobilize and sustain mass political support to date, this doesn't mean that a future jihadist political movement couldn't succeed in assuming power somewhere, either through revolution or elections. This might begin with the simple innovation of eschewing violence against fellow Muslims. The spread of elections in the Arab world could create fertile ground for political entrepreneurs of this stripe.

The end of proxy wars between the super powers was one of the principal benefits from the end of the Cold War. Proxy wars could return if a U.S.–China rivalry leads to a new era of mercantilism and no holds barred competition in the developing world; developing states have historically been very vulnerable to societal conflicts when competing external interests support opposing domestic power blocs. China's current brand of communism ideology lacks the aggressive expansionist mindset of regimes from previous eras; however, the potential for economic crises, destabilizing governance transitions, or a consolidation of power by xenophobic militarist leadership all allow the possibility (however remote) that the current economic symbiosis of the world's two most powerful nations could unravel before China joins the ranks of modern industrial democracies.

The conflict literature documents that wars in the post-WWII era tend to cluster geographically, persist, and reoccur. Rebels and terrorists seek sanctuaries across international borders, ethnic tensions remain animated by recent grievances, and geographic constants such as oil wells, diamond

mines, and poppy fields ensure that today's conflict zones are likely candidates to be tomorrow's conflict zones.

#### **2.4.4 The Hobbesian security dilemma**

The realist perspective on international politics argues that the absence of a global Leviathan leaves nations in a perpetual state of peril, with no external authority to enforce agreements, resolve disputes, and protect them from stronger adversaries. In this environment rival nations feel constantly threatened by one another, and have a standing incentive to plan and to arm themselves against surprise attack, or for a preemptive attack of their own. While the democratic peace, the ministrations of the U.N., and U.S. deterrence may have mitigated this threat for many nations, we can still see its outlines in rivalries between countries such as Israel and Iran, North and South Korea.

A large body of research has documented that this dilemma also occurs at the sub-national level; when civil war adversaries attempt to negotiate a peace treaty and the disarmament of rebels and militias, they risk exposing themselves to annihilation should the other side cheat on the agreement. Without an external agency to enforce the terms of ceasefires and peace agreements, these conflicts are often doomed to continue, a pattern that clearly emerges from global conflict statistics.<sup>1,2</sup>

#### **2.4.5 Demographics**

While youth bulges may not cause societal warfare, the close correlation of the two can hardly be coincidence. Civil wars can be thought of as a process of internal combustion—they require fuel, oxygen, pressure, and a spark—in this analogy, testosterone is equivalent to gasoline. So it is promising that demographic trends point to the dissipation of youth bulges in many developing countries over the next two decades, reducing their potential for explosive episodes of societal conflict, and shrinking the pool of labor available for supporting large military establishments that threaten their neighbors. Demographic projections are among the most accurate forecasts available and allow national security planners to anticipate the disappearance of youth bulges decades in advance.

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<sup>1</sup> Walter, (2002), 161.

<sup>2</sup> Humphreys & Weinstein, (2007), 3.

#### **2.4.6 Information**

The constructivist theory described in section 2.3 can be interpreted in Clausewitzian terms: while warfare is still an extension of politics by other means, the evolution of societal norms has caused the political costs of waging war to increase. This evolution gradually accumulates in the legal codes of nations and in international law, but has been given new impetus by the spread of the Internet, with its ability to disseminate reports and images of conflict from war zones worldwide in near real-time. This implies that future applications of military force will require supporting streams of information that establish and maintain the legitimacy of the mission, even more so than today. The conduct and results of military operations will be widely visible, the political sophistication of insurgent and terrorist media operations will increase, and media coverage of military operations will often be more important than the physical outcome of combat. This will challenge the ability of the U.S. to respond to adversary messaging in a timely fashion while ensuring consistency of messages and actions at all levels of command.

#### **2.4.7 International coordination**

The frequency with which intrastate conflicts reignite serves to highlight the importance of post-conflict reconciliation, reconstruction, and stabilization as critical ways of reducing the number of future wars. Reconstruction is doubly vital owing to the correlation of conflict with poor economic performance.

The many deficiencies in the quality of U.N. peacekeeping forces have been exacerbated by the reluctance of the U.S. and other Western nations to commit their armed forces to U.N. operations. While the political imperatives behind this reluctance may not change, it does highlight the importance of security assistance to build competent, deployable military forces within conflict prone regions such as sub-Saharan Africa. While the U.N. maintains its intention to build local capacity during peace operations in order to leave a robust security presence upon its departure, its track record is decidedly mixed.<sup>1</sup>

Some U.N. peace operations have been plagued by instances of abuse and corruption; the scale of the operations and the relative wealth of the spon-

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<sup>1</sup> UN DPKO, (2009).

soring countries giving them an outsized financial influence on local economies. The U.S. has experienced this on an even larger scale in Vietnam, Iraq, and Afghanistan.<sup>1</sup> Ultimately, this undermines mission success by delegitimizing host nation governments, militaries, and other local partners of the external security forces. Future operational designs should consciously account for this mismatch between the economic means of international and local security partners, to limit the scope for corruption and the distortion of local economic and political processes.

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### **3 Neurobiological, Cognitive and Social Science Insights on Radicalization and Mobilization to Violence**

#### **3.1 Basic introduction to the fields of neurobiology, cognitive and social science as they relate to the radicalization and mobilization**

*Ms. Abigail Chapman, Dr. Diane DiEuliis, Dr. Bill Casebeer*

##### **3.1.1 Introduction**

As indicated in Section 1 of this White Volume, the overriding goal of this volume is to provide readers with the enhanced understanding of population centric issues, specifically regarding the interaction of populations and their environment, so as to improve our responses to both short- and long-term national security challenges. Section 3 of the White Volume is focused on providing the reader with a snapshot of the on-going research, at the individual level of analysis, within the fields of neurobiology and the social cognitive sciences as it relates to enhancing understanding of radicalization and mobilization. The authors were selected based upon their research and expertise on a pertinent topic and relevancy to enhanced understanding.

The section begins with an introduction to the fields of Neurobiology and Social Cognitive Psychology. The paper provides a quick overview of common terminology and highlights the advantages of folding in advances in neuroscience and social cognitive psychology to the study of the complex population centric issues the U.S. is facing today.

*Dr. Janice Adelman and Abigail Chapman* approach the problem from the social psychological perspective by offering a discussion of social identification, influence, and recruitment. The authors note that individuals have an innate tendency to view themselves in the context of others, preferring to find solace with similar others and distance from dissimilar others, and explore the questions of how does such in-group favoritism work to an extremist organization's advantage and what other factors unite people within a group, and more importantly, incite them to act?

*Drs. Chris Rate and Rob Neff* provide an examination of whether or not Bandura's (1996) theory of the mechanisms of moral disengagement can be used effectively in the audience segmentation of a pan-Arab male population. Additionally, the authors discuss examples of how exposing the use of these mechanisms in terrorist propaganda and providing messages that are the opposite of the eight mechanisms can be effective in the development of counter radicalization messages and media products.

*Dr. Jeffrey Kaplan and COL (Retired) Christopher P. Costa* examine the implications of a "new tribalism" on the formation and motivation of lone wolf and autonomous cell violence, the nature of irregular warfare, and future threat streams. Kaplan and Costa conceptualize the new tribalism through the dual lenses of military intelligence/special operations, and the socio-cultural/religious aspects of Lone Wolf and Autonomous Cell terrorist violence, identifying three forms that it takes: Ascriptive, Aspirational, and Malign.

*Dr. Emile Bruneau* approaches the topic of psychological biases through the lens of a neuroscientist and human biologist. He offers a discussion of "hot" and "cold" psychological biases that help drive intergroup hostility and prevent the resolution of intractable conflicts. He further suggests how these biases can (and cannot) be reduced with positive interventions, and highlights the potential lessons for people tasked with safeguarding American national security.

*Dr. Greg Berns* expands upon his sacred values research by discussing a recent study designed to investigate the neural representation and processing of sacred values through the use of fMRI. This ground-breaking work demonstrates the utility of expanding upon demonstrated research findings through integrating methods drawn from the experimental approach to explore and understand potential justifications for terrorism and other forms of political mobilization.

*Dr. Joan Chiao* discusses how research from the field of cultural neuroscience of intergroup relations shows how cultural dimensions of social affiliation (e.g., individualism-collectivism) and social hierarchy (e.g., verticalism-horizontalism) shape neurobiological mechanisms and human behavior. Dr Chiao concludes that societal resilience likely reflects the historical and contemporary imprint of cultural and evolutionary processes



on shaping the human mind, brain, and behavior within and across group boundaries.

*Drs. Peter Hatemi and Rose McDermott* provide a discussion incorporating findings from political science theory and advances in genetics research, to explore the role of genetics in social and political attitudes and behavior, encompassing work on ideology and fundamentalism, as well as such complex phenomena as violence and aggression.

Finally, *Dr. James Giordano* concludes the section with discussion of the interactive nature of neuro-behavioral and cultural environment dynamics; the mechanisms and multi-dimensionality of these effects; how existing or new neuroscientific techniques and neurotechnologies could be used and developed to facilitate improved evaluative and interventional capability; and finally how these results can, with limitations, inform our understanding of preemption and intervention against patterned violence.

In examining violent extremism, social science has provided an extant literature surrounding the “who,” “what,” and “why” of violent extremist organizations (see *Journal of Strategic Studies* 2011).<sup>1</sup> The “who” and the “what” are the easy parts. It’s really the “why” at a fundamental human level that—even after decades of research, including theorizing, empirically testing, and cautiously observing—still has social scientists in disagreement and searching for answers. With the advent of unprecedented leaps forward in technologies for brain imaging as well as genetic mapping of the brain, it is possible for researchers to get a glimpse into what makes the brain tick, and, potentially, understand an individual’s decision making process as it pertains to violent extremism. While the brain remains largely inaccessible to direct observation, imaging technology and experimental techniques allow researchers and the lay public to see the brain in action and gain insights into the neural mechanisms (the patterns of brain activation) underlying social cognitive processes, such as social perception, attitude formation, emotion recognition, and decision making. Underlying these neural mechanisms are basic foundational genetics, inherited in individuals, which provide the recipe for the substrates that enable all brain and body functions down to the cellular level. The brain is at the center of who and what we are—it is what distinguishes us from other mammals and it is the essence of our very being, but it has only been in the past decade

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<sup>1</sup> The following is Adapted from Jeanette Norden, Diane DiEuliis, Abigail Chapman, and Tessa Baker.

that scientists have recognized the interconnections among the anatomy and physiology of the brain, our awareness of self (psychology), and our interactions with the world and people around us (sociology and political science). Applying the tools of these various disciplines in tandem with neuroscience can allow researchers to gain deeper insight into understanding intentions and motivations behind violent extremism by capitalizing on multi-method approaches to studying various phenomena.

### **3.1.2 Cognitive and social science**

Humans have an innate tendency to view themselves in the context of others, preferring to find solace with similar others and distance from dissimilar others. For over 30 years, social psychologists have looked to identify the factors that motivate people to join groups, to understand how belonging to a group shapes how we treat one another (both fellow group members and non-group members), and engage in behavior (of a socially accepted and non-socially accepted variety). Repeated experimental studies have shown that, even when randomly assigned to an arbitrary group with no pre-existing ties among its members, belonging to this group is associated with greater liking and favoritism toward other group members, whether they have met in person or not (Aronson 2010). How does such in-group favoritism work to an extremist organization's advantage? What other factors unite people within a group, and more importantly, incite them to act?

The social sciences offer some clues to answer these questions. For one thing, organizations that speak to an individual's sense of identity and group belongingness help shape subsequent loyalty to the group. Similarly, effective leaders may use a variety of social influence tactics to communicate the ways in which they themselves are similar to followers, providing a prototype for group members to follow (Hogg 2005; Hogg and van Knippenberg). Having a prototypical leader and feeling that one is a prototypical group member may contribute to the degree of influence toward joining violent extremist organizations (Hogg and van Knippenberg; Hogg et al. 2005). We do not know enough about these factors in real group settings to determine potential interventions that may stem the flow of interest in joining extremist organizations. Most aspects of violent extremism are a group phenomenon. Individuals form alliances, bonds, and connections to similar others who share similar worldviews and beliefs. That is, individuals form bonds with other like-minded individuals and move toward a common goal. Over time, individual members become more com-

mitted to achieving group goals and more connected with the group and their social identity. Social identities are defined as the knowledge we have of belonging to particular groups that carry value or meaning (see, e.g., Tajfel 1974; Tajfel 1982; Tajfel and Turner 1979; Tajfel and Turner 1986). It is important to note that social identities are by nature social constructions. Yet, because human beings have an innate tendency to categorize the world around them, social identities become those easily recognizable aspects for understanding which groups you belong to and which you do not. For example, language is an instant identifying characteristic with which people are categorized as being a group member or an outsider.

The very definition of social psychology as a science hinges in part upon how people interact with, and are influenced by, one another. The most enduring and oft-cited definition refers to social psychology as “an attempt to understand and explain how the thought, feeling, and behavior of individuals are influenced by the actual, imagined, or implied presence of others” (Allport 1985). Note that the key word in this definition, influence, is an abstract concept to refer to when we really want to know *how* and *why* people succumb to others’ ideologies and worldviews.

### 3.1.3 Neurobiology: brain structures

If we look beyond the individual behavior of neurons, and their chemical signaling molecules, to the larger neural network, it is important to focus on those specialized areas of the brain that can be attributable to particular thought processes and behaviors believed to operate in radicalism or other behaviors. As noted previously, the front part of the brain, specifically the prefrontal cortex, is what distinguishes human beings from all other mammals. Areas of the frontal cortex appear to be critically involved in social relations and matching events with emotions. The *frontal cortex* is the receiving “processor” for a myriad of signals generated by many parts of the brain; these areas are involved in weighing cognitive and emotional factors in arriving at decisions.

So where are emotional signals coming from (see Heberlein and Adolps 2007)? The **limbic system** is a set of brain structures that control learning and memory, emotion, and executive function (this latter term refers to cognitive processes such as planning, working memory, attention, problem solving, and verbal reasoning) (see Ratey 2001). The limbic system areas are specifically capable of abstracting morals from what a human being has been exposed to within their families or culture, as these nerve pat-

terns are learned over time. The hippocampus, for example is a structure of the limbic system that is specifically wired for learning and memory—when this area of the brain is damaged or diseased, the person will experience an inability to create or make new memories.

Deep in the medial, or middle part of the temporal lobe, is a structure called the amygdala. This area of the brain is wired to respond to threats in the environment. When a threat is perceived by these neurons, through sensory or other inputs, the resultant neuronal firing can result in one of two options—the so-called “flight or fight” response. The individual can flee the threat, and neurons will fire to enable those complex movements, or the individual can stand and fight the threat, engaging a different set of neurons related to those physical actions. As brain structure evolved over time in humans, this “fight or flight” response likely enabled survival in hostile environments. In modern society, while a human being may be rarely threatened by a bear or tiger, the amygdala still possesses the full ability to engage “fight or flight” responses; something physically threatening is not fully distinguished by the amygdala from something psychologically threatening. The “fight or flight” response, as part of a hyperarousal state, may shut down higher cognitive function, so in the modern day setting this can have ramifications for individual response to non-physical threats. The “fight or flight” response can be fully engaged in an argument between individuals, for example. When this fight or flight response is constantly active in a threat environment over long periods of time, an individual can develop the syndrome called post-traumatic stress disorder (PTSD). PTSD has symptoms of nervousness, distress, depression, or exaggerated responses to non-threatening stimuli. It can be observed in the war fighter who has been in the field for extended periods of time, in victims of rape or physical abuse, and even in victims of car accidents or other disaster scenarios. Understanding the neurobiological basis of syndromes like PTSD can be extremely helpful for understanding a variety of related human behaviors.

### **3.1.4 Neurobiology: neurogenetics**

Underlying all neuronal and brain structure are genes. Genes are sections of DNA that provide the master blueprint for every protein made in the human body. Each cell of the human body contains an identical set of genes inherited from one’s parents; each cell only expresses those proteins that are necessary to help it perform its specific function. In neurons, genes code for all the machinery that allows neural transmission (and thus

human cognition) to occur: neurotransmitters, neurotransmitter receptors and transporters, etc. Scientists are just beginning to map genes to particular areas of the brain, and are attempting to learn which complements of different genes may contribute to aspects of brain function (see Harmon-Jones and Winkielman 2007).

A simpler statement is that individual neurons express particular genes based on their function. So, for example, neurons of the hippocampus contain genes for serotonin, the primary signaling molecule in that area of the brain. If an individual has inherited a genotype that doesn't allow for enough production of serotonin, that individual *may* be predisposed to clinical depression. Similarly, if the individual is exposed to an environmental factor that suppresses the gene for serotonin, the same result *may* occur; the person can suffer from depression based on that particular environmental "trigger." It is important to recognize that a genetic predisposition does not always culminate in that particular trait to which it is linked.

Understanding the complex factors of inheritance and environmental triggers that control genetic expression is important to our understanding of basic brain function. And when trying to relate specific genes to behaviors, the scenario is even more complex, as single genes are not responsible for complex behavioral traits, rather it includes a collection of genes, learned neuronal signaling over time, the added factors of environment, cultural influences, and potential other factors as yet not identified. As genes create proteins and cellular components, these molecules can then signal back and turn their parent genes on and off accordingly as part of complex feedback loops based on expression. And some genes' sole function is to regulate other genes. It is not fully understood how neuronal activity in the context of emotions and through processes affect these complex genetic controls. While genetics is not deterministic, it is important to understand as the basic unit of cellular control. Environment plays a significant role in modulating human behavior and instigating particular genetic pathways. While each cell has the same genetic code in an individual, different switches and stimuli alter the expression of those genes. To assume that a person is irredeemably violent based upon their genetic makeup is unfairly reductionist and unethical (Rose 1996). Taking these facts into consideration, the nascent field of neurogenetics should be recognized as another tool in examining all the complex factors that contribute to whether an individual is a humanitarian or a terrorist.

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## 3.2 Social identification, influence and recruitment

Dr. Janice Adelman, Ms. Abigail Chapman, M.Sc

### 3.2.1 Introduction

Groups are a fundamental part of life. Humans have an innate tendency to view themselves in the context of others, preferring to find solace with similar others and distance from dissimilar others. A robust finding in the social identity literature shows that in experimental paradigms, when people are randomly assigned to an arbitrary group with no pre-existing ties among its members, a preference for others in this group emerges. How does such in-group favoritism work to an extremist organization's advantage? What other factors unite people within a group, and more importantly, incite them to act? A social identity theoretical perspective offers some clues to answer these questions.

### 3.2.2 The social psychology behind extremist groups

Most aspects of terrorism are a group phenomenon. Individuals form alliances, bonds, and connections to similar others who share similar worldviews and beliefs. Al-Qaeda in the Arabian Peninsula AQAP<sup>1</sup> operates with these same principles. For example, over time, individual AQAP

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1 . For sake of ease of illustration of the concepts contained within this chapter Al-Qaeda in the Arabian Peninsula (AQAP) will serve as a case study.

members may become more committed to achieving AQAP's goals and more connected to other members as well as the AQAP social identity. Social identities are defined as the knowledge we have of belonging to particular groups that carry value or meaning (see, e.g., Tajfel 1974, 1982; Tajfel and Turner 1979, 1986). Keep in mind that social identities are by nature social constructions. They are also simple categorizations that people can use to understand which groups they belong to and which they do not. Everyone fits some sort of categorical nomenclature, be it by gender (e.g., man or woman), nation (e.g., American or Yemeni), profession (e.g., accountant or terrorist), or religion (e.g., Christian or Muslim), just to name a few. The topic of identity is so commonplace that we often hardly take notice of it. Yet, it is one of the most important factors in life, in both interpersonal relations, as well as in intergroup relations.

Social identity theory provides a conceptual and theoretical framework that can inform other topics of interest, such as why people join groups, how they are influenced, and the role of group leadership. Indeed, research from the social identity perspective shows how social identity processes are involved in group cohesion, stereotyping, social facilitation, social influence, and leadership (Abrams and Hogg 2004). The key point to remember is that of reciprocity and interconnectedness between individuals and society. "Groups have higher-order emergent properties and these transform the individual, while at the same time allowing individuals to engage in group processes that are capable of transforming the world" (Haslam et al. 2010, p. 50). Social identity, then, is one window to viewing the mechanisms behind intergroup behavior.

In the years leading up to, and in the years since its reorganization as AQAP, the organization has used a number of different tactics to recruit new fighters and supporters since 2006. Initially, the group's public relations in Yemen and Saudi Arabia consisted only of feeding local journalists with news of attacks and claims of responsibility. This was followed by sporadic posting of statements on popular Arabic-language web forums known to distribute propaganda from other branches of al-Qaeda. In 2008 though, AQAP's al-Malahim<sup>1</sup> media wing began producing its own high-resolution products. The merger of al-Qaeda in Yemen and Saudi Arabia in

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1 As described in the E.J. Brill's First Encyclopedia of Islam 1913–1936 (Houtsma, 1927, pp. 188-189), the origins of this word are obscure; it does not appear in the Quran. Nevertheless, the root of the word al-malahim in Arabic refers to flesh and in old Arabic signifies decisive fighting, involving defeat, pursuit, and slaughter.



2009 continued the wave of new propaganda, from glossy e-journals to elaborate video productions. The flagship product was *Sada al-Malahim* (*The Echo of Battles*). As of this writing, 16 issues have been produced since January 2008, with each issue increasing in quality, both in terms of production and content. The e-journal is distributed through online channels familiar to al-Qaeda sympathizers and active supporters. As many analysts have characterized, the magazine extols violent *jihad* and those who have been “martyred” carrying out AQAP attacks (see, e.g., Johnsen’s blog Waq-al-Waq for some insights).<sup>1</sup> The magazine also provides religious justification for AQAP’s actions and ideological positions. For more pragmatic readers, the magazine provides detailed tactics and techniques for operational use and reviews of weapons. On occasion, it also includes political analysis highlighting perceived weaknesses or plights of the U.S. and other Western states.

Both *Sada al-Malahim* and its English counterpart *Inspire*<sup>2</sup> provide definitive social identity cues regarding prototypical behavior and beliefs. The magazines provide a cohesive group (e.g., “brothers”) with clear guidelines for expected behavior (e.g., following the path of *jihad*). Thus, as we would expect from social identity theory, readers are provided an important identity with which to frame themselves and others in the context of the world. Readers can thus compare those who are like them (part of their in-group) with those who are not like them (part of the out-group). Consequently, as seen from experimental evidence, the readers will naturally tend to favor members of the in-group to the extent that they will attempt to disadvantage the out-group in favor of the in-group. Moreover, the magazines often refer to the ways in which Muslims are tested by Allah. When readers are faced with uncertainties, such as the uncertainties in Yemen, the *ummah*, and the rest of the world, readers will more strongly identify with the group that is important to them, particularly if the group is cohesive, has clearly defined boundaries, and clearly defined worldviews or guiding norms. This appears to be exactly how AQAP’s communications are designed: the magazines are filled with fellow jihadis explaining their own path to martyrdom; the leaders extolling the virtues of piety and Islam;

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1 Due to research constraints for this project, the authors have been unable to delve into the Arabic language media sources except for those interpretations published elsewhere by highly respected scholars such as Gregory Johnsen and Barak Barfi.

2 Although the death of Samir Khan temporarily halted production of *Inspire* as of May 2012 new editions have been released, however both versions lack the polish of previous versions.

and references to the uncertainty and unrest throughout the world are prominent.

Ambiguity and uncertainty can be serious threats in life. To be sure, uncertainty is not necessarily negative; in many instances, we seek out uncertainty by traveling to new and unknown locations, or trying new things. However, too much uncertainty can be aversive. Most people tend to seek out ways to alleviate any aversive uncertainty. Empirical research has suggested that one way to alleviate such uncertainty is to strongly identify with a group that is important and self-relevant (see, e.g., Hogg 2006, 2007, 2008, 2011; Hogg et al. 2007; Mullin and Hogg, 1998, 1999). By identifying with one's group, turning to the prototypical group members for guidance offers assurance and validation given that prototypes and norms are shared by group members. Indeed, when people feel more uncertain, they look to those groups that are cohesive with clear guidelines and norms (Hogg et al. 2006, 2007; Mullin and Hogg, 1999), sticking more closely to group social norms (McGregor et al. 2001), and even adhering to more extreme group norms (Hogg 2004; Hogg et al. 2010, 2006).

There are growing fears among many in the U.S. and Saudi Arabia that AQAP is in a position to exploit, if it is not already exploiting, the ongoing instability, and uncertainty, in Yemen to recruit new fighters, organize new attacks, and execute them both regionally and globally (Blair 2009; *Quick Take: al Qaeda and its Affiliates Exploit Yemen Unrest*, 2011). This fear is exacerbated by the fact that Yemen is not only governed by a weak central government (and thus ineffective leadership, as we shall see), but that its government has long-standing separatist concerns in the south and truce negotiations to complete with Shi'a rebels in the north. Some analysts suggest that AQAP's capacity to threaten the U.S. is likely to remain robust, even if Yemen experiences broad structural change (Zimmerman 2011). The recent waves of counter-government protests in Yemen are evidence of the volatility in the desert nation and may result in drastic government changes if not, at least, a crackdown on dissent. Indeed, during the past year Yemen has experienced significant and volatile civilian unrest and a change in presidential leadership creating an atmosphere of uncertainty.

#### 3.2.2.1 Social identities provide social norms

Theories of social influence are well-poised to inform our understanding of terrorist organizations, in general, and recruitment of willing would-be

terrorists more specifically. Considering the group dynamic in social influence, “rather than being influenced by others because we are dependent on them for social approval and acceptance or for information that removes ambiguity and establishes subjective validity, we are influenced by others because we feel we belong, psychologically, to the group, and, therefore, the norms of the group are relevant standards for our behavior” (Hogg 2010, p. 1183).

### 3.2.2.2 *The power of norms*

For the purposes of understanding terrorist organizations and recruitment, we define norms as a group phenomenon that provides a frame of reference in any particular situation. The pages of AQAP’s magazines and web portals are prime examples, with articles that touch on topics such as “what to do when facing the infidel” or “the life of a martyr.” Remember that norms are social constructions of shared beliefs, and as such are meaningless until a community invests and breathes power and meaning into them. This is an important point to consider when thinking about how norms are transmitted: norms *must* be shared, as they are through AQAP’s vibrant literature and media outreach.

Studies suggest that the group plays a central role in an individual’s shaping of behavior and attitudes. Individuals look to others for cues as to how to behave, particularly when there is a degree of uncertainty involved. Recall that when people feel uncertain, they more strongly identify with the group that is important around them. In a laboratory setting, that might be the group in which you are part of an experiment. In other settings, it may be your newfound college classmates, sorority sisters, or neighbors. When you are part of a group that is important to you, this conformity phenomenon will be even more pronounced as you seek to fit in with your group members and do the “right” thing. A telling example of how norms play out in conflict and war comes from recruited soldiers’ testimonies. Notably, what these soldiers indicate is that “people sign up because they *want to* and because *at a group level* they believe *it is the right thing to do*” (Haslam et al. 2010, p. 48, emphasis in original).

### 3.2.2.3 *Social identities provide a model*

How do we know what is “the right thing to do”? Being part of a group offers a sense of sameness; group members may dress similarly, talk similarly, even think and act similarly. Naturally, the degree to which we are the

same will vary to some extent. How is it, then, that all kinds of unique characters can come together and be as one group? Once we distinguish the differences between groups (“us” versus “them”) and the similarities within groups (what makes us “us”), we turn to our group for appropriate norms in any given situation. We saw how norms are the result of social interactions and passed down through generations via a variety of means. But what motivates us to cling to our group norms? Adhering to such group norms has been linked to strength of group identification, such that the more strongly one identifies with a group, the more likely he or she will act according to group norms (Hogg and Smith 2007; Terry and Hogg 1996).

Given the prevalence and relevance of this construct, it should not be surprising that social identities matter in matters of conformity. Research has shown that social influence is not merely bowing to others’ wisdom when we are unsure of the answer ourselves, nor bowing to please those around us. Rather, social influence is predicated on the strength with which we feel connected with those around us who may know more than we do, or whom we aim to please. A number of studies support the notion that belonging to an in-group plays a pivotal role in conformity to one’s in-group and adhering to the group’s polarized norms in the lab (Abrams et al. 1990; Hogg and Turner 1987; Turner et al. 1989), as well as in the street (Reicher 1984a, b). Moreover, further studies have shown how uncertainty exacerbates this identity-norm adherence link (McGarty et al. 1993; Smith et al. 2007).

We know that the AQAP literature and communications are permeating the web. But who exactly reads the AQAP *Inspire* magazines? More importantly, who is the target audience? Most of the slick, glossy, and internet-based communications from AQAP appear to target potential foreign recruits and other elite, well-educated Arabs. It may be that these communication tactics are used more for fear-mongering (particularly in the West and among the more secular Arab demographic that embraces western society), rather than as active recruitment aids. In Yemen, as in much of the Arab world, low literacy rates and the lack of sufficient telecommunications infrastructure make these communication products inaccessible for many.<sup>1</sup> Recruitment techniques within the less literate Yemeni communities most likely involve traditional communication networks to deliver

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<sup>1</sup> According to the CIA World Factbook, 50.2% of the total population in Yemen is literate. Additionally, Internet users are 10% of the population.

simple hardcopy materials or spoken stories. Additionally, the content of messages at the local level appears to take a different angle by playing on local grievances with the government and living conditions, as well as on local Islamic tradition. In the same way that the glossy magazines communicate social identity norms using prototypical members and exploiting uncertainty, so too do these local messages. Focusing on the current leaders in power as non-prototypical is an easy tactic for creating fissures within the group and opening up opportunities for the less powerful to ascend the hierarchy toward leadership. Further research is necessary to explore the actual impact that the organization's communication methods have on recruitment and in driving home the social reality of embedded conflict among both groups.

### 3.2.3 Conclusion

Social identities are world-making resources insofar as they influence social movement, mobilization, and collective action. Social influence is wrapped up in social identity because those who are able to drive mobilization emerge from how group/category prototypes are defined. As such, the scale of mass mobilization is a function of how category boundaries are defined, and the direction of mass mobilizations is a function of how category content is defined. Thus, given that people will want to join AQAP and support the group's goals to the extent that AQAP is an important identity, that the goals fall in line with their shared norms, and they feel that the group provides benefits. Social identities are dynamic. They constantly change based on social cues and environment. Moreover, people hold multiple social identities. The degree to which one or several is more important than others is also a function of social cues and environment. AQAP may be able to successfully tap into people's desire to have a strong tie to that identity, given the present instability and uncertainty in the country. Consider AQAP's stance from their first issue of *Inspire* magazine: "Our objectives are driving out the occupiers from the Arabian Peninsula and purifying its land from them, establishing the law of shari`ah, the establishment of khila`fah, spreading the call to the oneness of Alla`h, defending against the transgressors and helping the weak" (al-Malahem Staff, 2010, p. 14). As these goals speak directly to the Muslim faith, this may strike a chord with individuals for whom their Muslim identity is very important. AQAP often turns to religious texts to justify their claims, as with the well-known "*hadith* urging Muslims to "expel the polytheists from the Arabian Peninsula" (Barfi 2010, p. 7).

Contrast AQAP's own stated objectives with an outline of AQAP's goals provided by U.S. research analysts. In a report released late 2011, based upon AQAP activities, the author finds that "overall, AQAP seeks to: attack the U.S. homeland....; attack U.S. and Western interests in Yemen....; destabilize the Yemeni government....; and assassinate members of the Saudi royal family" (Sharp 2011, pp. 14–16). The difference in the framing of these two sets of objectives/goals is striking. While AQAP grounds their objectives in terms of group-based processes and identity structures, the U.S. frames the group's objectives in terms of actions and desired outcomes. Both groups heavily rely on each other to sustain their respective narratives. Ultimately, each side exhibits behavior that confirms their preconceived notions and stereotypes about the other. Martha Crenshaw (1986) described this beautifully when she wrote, "a punitive government response may confirm terrorist expectations of coercive 'enemy' behavior, provide a needed reward of attention and publicity, and generate resentment not only among terrorists but among the larger political or ethnic minorities from which they sprang" (p. 400; and see also Crenshaw 2000). This is what is commonly known as the self-fulfilling prophecy. Social psychological research on such behavioral confirmation highlights the ways in which belief can create reality (see, e.g., Snyder 1984; Snyder and Haugen 1994; Snyder et al. 1977). Theoretically, behavioral confirmation is a method of testing reality. By testing reality, our initial beliefs about those around us become the construct of reality.<sup>1</sup>

### **3.3 Using the Theory of Moral Disengagement in audience segmentation and the development of counter-radicalization messages**

*Dr. Chris Rate, Dr. Rob Neff*

#### **3.3.1 Abstract**

This paper investigated if Bandura's (1996) theory of the mechanisms of moral disengagement can be used effectively in the audience segmentation of a pan-Arab male population. Moral disengagement is the process through which individuals and groups disengage from their own internal moral standards for behavior and justify the inhumane behavior of them-

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<sup>1</sup> Behavioral confirmation comprises four links discussed by Snyder (1984). First is the link of reciprocity between two individuals who are interacting. Second is the coping strategy that each individual utilizes based on their initial beliefs about the other driving the interaction. Third is the individual's internalization of his own actions to his beliefs about his actions. And, finally, comes the preservation of his belief to the action.

selves and others. Previous research has demonstrated how extremists use the eight mechanisms of moral disengagement in their propaganda. This paper also discusses examples of how exposing the use of these mechanisms in terrorist propaganda and providing messages that are the opposite of the eight mechanisms can be effective in the development of counter radicalization messages and media products.

### 3.3.2 Introduction

Bandura's (1990) theory of the mechanisms of moral disengagement has been applied to understanding the behavior of international terrorist organizations and violent groups as diverse as the IRA, Hezbollah, and Palestinian suicide bombers (Hafez 2006; Sarma 2007). According to Bandura (1996) moral disengagement is an internal thought process by which an individual is able to disengage their own inner moral control to justify inhumane conduct. For the most part, an individual's moral standards, which are a product of their social and cultural learning, serve to regulate human behavior. This occurs by the self-sanctions that people apply to themselves when they violate their own internal standards. Self condemnation is a highly uncomfortable psychological state leading to devaluation of self worth and considerable anxiety (Bandura 1990). Consequently, most people seek to avoid a state in which their own actions are not in line with their internal moral standards. One such process, moral disengagement, involves the use of a variety of psycho-social mechanisms that allow an individual or group to disengage from their self regulatory standards and exonerate their violent behavior. The definitions of the eight mechanisms are included in Table 3 below.

Table 3. Mechanisms of moral disengagement.

Mechanisms of Moral Disengagement	Definition
Moral Justification	Portraying violent acts as serving a higher social cause
Euphemistic Language	Using sanitizing terms (e.g. martyrdom operations) so violent acts are seen as mild or benign
Exonerative Comparison	Comparing own acts of violence to extremely heinous or outrageous acts of violence
Displacement of Responsibility	Placing the responsibility for the harm one causes on other groups
Diffusion of Responsibility	Obscuring or minimizing the causal role played in the outcome of violent acts

Mechanisms of Moral Disengagement	Definition
Ascription of Blame	Blaming the victim of one's action for causing the harm inflicted upon them
Misrepresenting the Harm	Minimizing, distorting or ignoring the harmful impact of one's action
Dehumanization	Removing the human qualities of people/groups and replacing them with evil or demonic qualities

When discussing the process of moral disengagement in a pan-Arab population, it is important to consider the social-cultural framework of ethics operating in that society. Islamic faith and moral behavior are highly inter-related as Islamic teachings offer a prescription for how to act in all domains of life (Halstead 2007). The moral and ethical framework of Islam discussed in the Qur'an and the Hadith distinguish acts that are permitted (halal) and forbidden (haram). In particular, morality in Islam is clearly articulated in the Hadith, which provides a highly detailed account of the Prophet Muhammad's life, as a pure example of righteous behavior. Modern day moral questions are often answered through reference to the Prophet's words and actions (Halstead 2007). Additionally, the Prophet's actions are often linked to the Islamic virtues or the 99 names of G-D, which are absolute qualities that are to be expressed in the circumstances of day to day life (Abu Laylah, 1990). These virtues, including sincerity, responsibility, integrity, honesty, and truthfulness, are highly incompatible with the mechanisms of moral disengagement discussed above. Therefore, the use of Bandura's mechanisms in the content of the media messages produced by Islamic extremist groups runs counter to the moral teachings of Islam.

The majority of research on moral disengagement has examined the writings and speeches of members of extremist organizations in terms of how they relate to Bandura's eight social-cognitive mechanisms of moral disengagement (Bandura 1990; Hafez 2006; Sarma 2007). For example, in Hafez's (2006) analysis of the media products made by Palestinian suicide bombers, such as last will and testament videos and speeches, he was able to draw explicit linkages between the content of these media products and Bandura's mechanisms of moral disengagement. Two such linkages includes the tendency of many of the suicide bombers to use the mechanisms of moral justification and dehumanization, such that their violent acts are justified as serving a higher social cause of freedom from the op-



pression of a treacherous and evil entity (Hafez 2006). Making such mass media, moral appeals enables individuals and societies to exonerate themselves from blame and reinforce continued acts of inhumane behavior. Additionally, the use of the cultural-religious frame of Islam provides an additional ability to reshape acts of violence as ethical and righteous. Given the use of Bandura's mechanisms of moral disengagement in the content and appeal of extremist media, it is critical to examine if these social-cognitive mechanisms can be used to segment a pan-Arab audience and develop culturally appropriate counter messaging media.

Few, if any, studies on moral disengagement have examined a community based sample of young pan-Arab males for the purposes of audience segmentation (Bandura et al. 2001; White et al. 2009; Young et al. 2007). This population is uniquely important to examine, given growing concerns about the recruitment of young men into extremist organizations. There is a large and growing body of data that outlines the process through which an individual may become radicalized and recruited into a violent extremist organization (Horgan 2007). The majority of this research has highlighted the importance of existing social/environmental inequalities, perceived and actual grievances, and a gradual process of social facilitation as key elements of radicalization and recruitment (Sagemen 2004). Additionally, some research has documented the ongoing development of identity as possibly critical to understanding the terrorist recruitment process (Taylor and Louis 2003). Missing from the radicalization and recruitment literature is an examination of the social-cognitive processes, such as moral disengagement, by which individuals may become more vulnerable or susceptible to engaging with violent groups and extremist tactics. More importantly, by looking at these internal social-cognitive elements, it is possible to identify additional paths through which susceptible individuals and groups may be exposed to preventive messages and interventions aimed at re-engaging one's internal moral compass. The inverse of the same social cognitive mechanisms employed by extremist groups can be used to bolster individual and collective restraints against violence and acts of cruelty.

### **3.3.3 Methods**

#### *3.3.3.1 Procedure*

A multi-stage random sample of 2165 young pan-Arab men was collected via phone survey to examine rates of moral disengagement and its relation

to opinions about the use of violence against civilians to defend Islam, frequency of stressful life events, pro-social behavior, and tolerance towards others. This study used a cross-sectional design meant to elucidate possible correlations between variables and not to explore causal relationships.

The sample included approximately 240 young men from each of the following nine countries: Kingdom of Saudi Arabia, United Arab Emirates, Egypt, Kuwait, Lebanon, Jordan, Oman, Syria, and Yemen. All of the participants were between the ages of 15 to 30 and self-identified as Muslim. Approximately, 87% of the participants self-identified as middle class, with the majority having completed secondary school and beyond (67%). While 53% of the sample reported working full time, 40% self-identified as students. The most frequently reported occupations were white collar employee and civil servants. The mean age of participants was 23 years old. Also, 65% of the participants reported attending mosque daily and 31% reported attending mosque services at least once a week.

#### 3.3.3.2 Measures

All of the following instruments were translated into Arabic and back translated to check for accuracy and intelligibility prior to the start of the phone interviews. The following constructs were measured via self-report: moral disengagement, opinions about the use of violence against civilians to defend Islam, frequency of stressful life events, pro-social behavior, and tolerance towards others. For more information about the measures see Appendix D.

#### 3.3.4 Results

Results of the analysis revealed significant differences between participants who scored higher or lower on the mechanisms of moral disengagement scale. Overall, participants who scored high on moral disengagement were more likely to have lower levels of tolerance for others, report lower levels of altruistic behavior, and have higher levels of acceptance of the use of violence against civilians and report a higher number of stressful life events. For extended information on data analysis see Appendix E.

#### 3.3.5 Discussion

The present, brief study examined the utility of using Bandura's (1990) theory of the mechanisms of moral disengagement to understand the opin-

ions and beliefs of a community based sample of young pan-Arab males. Results of the study indicated that the participants in this sample could be described based on their scores on the measure of moral disengagement. This finding suggests that, even in a normative, non-high risk sample of participants, there are significant differences in terms of their tendency to disengage from their internal moral standards for judging unethical behavior. Moreover these differences were significantly related to participants self-reported rates of altruistic behavior and tolerance of different ethnic, religious, political, and gender groups. Additionally, those who reported a greater tendency to disengage from their internal moral values also experienced higher rates of stressful life events in the last year. This finding relates back to the literature on radicalization, such that extremists often note an accumulation of actual and perceived grievances as leading to their current actions (Sageman 2004). This finding deserves further examination to determine if particular stressors are more or less related to levels of moral disengagement. It may be that the overall frequency of stressors is less important than the perceived emotional impact of the stressor on the individual.

In addition to the above noted findings, levels of moral disengagement were found to significantly differentiate an individual's tendency to justify or agree with acts of violence against civilians to defend Islam. This finding suggests a direct linkage between moral disengagement and opinions about the use of violence against civilians to defend Islam. While this study only examined opinions and not actual behaviors, there was a clear trend for those with higher scores on moral disengagement to defend the use of violent tactics against non-combatants. This finding will need to be explored further to determine if opinions about the use of violence can be traced back to actual acts of aggression or support for extremist groups.

### **3.3.6 Application example**

The use of moral disengagement in the audience segmentation of a pan-Arab population can help to guide the development of culturally appropriate media messages that work to counter the mechanisms of moral disengagement. These media messages should conform to the framework of Bandura's eight mechanisms, while being shaped through the cultural lens of Islamic moral principles.

One example of the use of Bandura's framework is channeling the power of humanization to counter extremists' messages that vilify and demonize

certain groups (Bandura 1999). There are numerous historical examples of the power of personalization or humanization in deterring inhumane behavior (Bandura 1990). For example, the moral actions of a young helicopter pilot present at the My Lai massacre during the Vietnam War provides a clear example of the power of humanization. The pilot, realizing that a massacre was underway, actually had to authorize firing on his own countrymen to rescue two young children trapped in a ditch next to their dead mother. The pilot stated his reasoning as such: *I had a son at home about the same age* (as cited in Bandura 1999). By seeing the young Vietnamese children as similar to his own, and therefore as people possessing all the same human qualities, he was able to perform an incredibly risky behavior that ran counter to the mass violence taking place around him.

The humanization of people allows for empathy and emotional engagement, which vastly decreases the likelihood of inflicting harm or damage (Bandura et al. 1975). Messaging that includes looking at the personal stories and lives of so-called enemies could be a powerful tool to preventing acts of violence. Such a media strategy was used recently in Rwanda in which radio broadcasts aired the personal stories of two families from rival villages (Staub 2006). In addition, these radio broadcasts targeted an explanation of the causes of violence by describing how young men are forcibly recruited into militias. The dual goal of such a program is to help people understand how violent groups manipulate and corrupt youth as well as to personalize the “enemy” by sharing their similar story of pain and hardship. Another example of a media product that uses a humanizing message is a video put out by an NGO group committed to peaceful solutions to the Israeli–Palestinian conflict, which depicts the story of young Israelis and Palestinians working for peace by conducting town hall meetings and peaceful demonstrations (<http://dotsub.com/view/4c2f7118-5021-458c-a7ce-27570bfeb0f6>; retrieved August 5, 2009, English subtitles). This video, intended for international audiences, personalizes the lives of these young “moderates” and their mutual goals. Going beyond these simple examples, in a pan-Arab audience it would be important to convey messages of personalization and humanization through the moral and cultural frame of the principles of Islam. This could be done by the same format of storytelling or possibly through the culturally and historically popular method of written and oral poetry. The key element is that aspects of the message or elements of the story should directly connect to verses, text and symbols from the Qu’ran and Hadith.

### 3.3.7 Study limitations

There are many limitations to the present study and the results should be interpreted with caution. To begin, the present study is strictly correlational in nature, using a cross-sectional sampling of a large and diverse population. Therefore, no statements about causality can be made from these findings. Additionally, it should be noted that the levels of moral disengagement reported in the sample were still relatively low, even in the high moral disengagement group, as this was a community based sample of participants and not a high risk sample of extremists. Finally, given the extremely large sample size, it is possible that the differences between the high and low scoring groups may have been exaggerated or accentuated to some extent. Therefore, it will be important to replicate these findings on additional samples of young pan-Arab males.

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### 3.4 On tribalism: Auxiliaries, affiliates,<sup>1</sup> and aspirational political violence

*Mr. Christopher P. Costa, Dr. Jeffrey Kaplan*

#### 3.4.1 Introduction

Few illustrations better typify overused clichés of Alexander the Great’s military adventurism in Afghanistan than his tribal alliances and clashes. One particular historical strand reveals that Alexander the Great and the Macedonian army—at the outset of his Indian Campaign in 327 B.C.—strategically sought ways to build necessary alliances with tribes for geopolitical and tactical reasons. In return, these tribal auxiliaries launched an expedition—with a divided army in what is modern day Jalalabad—toward the Indus River valley.<sup>2</sup> The Macedonian armies marched with their tribal auxiliaries, and were beset throughout their march by untold tribal intrigues—even from pre-Islamic Buddhist “holy-men—corresponding to the modern mullahs.”<sup>3</sup> And so, that period of Alexander the Great’s Afghan–Indian campaign was marked by a paradoxical combination of cooperation, resistance, and tribal betrayals. Alexander’s campaign marks the last successful invasion and pacification of Afghanistan.

In this paper, we shed new light on the consequences of tribalism in the present day. Explicit in our argument is the intricate and nuanced historical phenomenon—the interplay—between warriors and tribes. This paper argues that there are two forms of modern tribalism that affect the U.S. security environment. The first, Ascriptive Tribalism, refers to tribes, as we currently understand them: forms of organization based on kinship, blood, and quite often territory. The second, Aspirational Tribalism, is less understood, but constitutes an increasing menace to U.S. security interests. This form of tribalism occurs when those born outside of the tribal system desire to be accepted by tribes. The tribes to which one might as-

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<sup>1</sup> The National Strategy for Counterterrorism June 2011; available at [http://www.whitehouse.gov/sites/default/files/counterterrorism\\_strategy.pdf](http://www.whitehouse.gov/sites/default/files/counterterrorism_strategy.pdf)

The strategy explicitly defines affiliates as groups that have aligned with Al-Qaeda. In addition, the use of the term “adherents” includes those “inspired to take action”. For the purposes of this study, “Aspirational tribalism” is an important unifying theme that drives “adherents” to action.

<sup>2</sup> Arthur Weigall, *Alexander the Great* (New York: G.P. Putnam’s son’s, 1933), 274.

<sup>3</sup> Ibid., 275.

pire may be an Ascriptive tribe, but more often they are Aspirational tribes. At the apex of Aspirational tribes that constitute a security threat to the U.S. is al-Qaeda, but the Taliban in Afghanistan or Pakistan would be included in this definition. Not all Aspirational tribes constitute a threat however. Benign Aspirational groups would include the wider community of Muslim believers (Umma) that every convert to Islam joins as a result of the conversion process, or the rare cases in which an outsider is accepted as a member of an Ascriptive tribe. Malign Aspirational tribalism is normative, however, and from their number emerge lone wolf actors and the establishment of autonomous cells within the aspirants country of origin.<sup>1</sup>

Just as it is necessary to look at ancient models of tribes in the context of warfare, it is equally as crucial to examine Aspirational tribalism today, when patterns of Jihadist movements share many core goals, such as globalized Islamic unity and rejection of Western values. To the extent that we recognize that tribes and tribalism are differentially rooted in societal patterns—including political violence and expedient tribal alliances—this new line of inquiry leads us to another theme that emerges in this paper. It is in the context of warfare and a relentless Western counterterrorism strategy, then, that we may examine Aspirational tribalism or, perhaps better labeled, malign Aspirational tribalism, an extra-tribalism dynamic, which will threateningly give rise to the creation of autonomous Jihadist cells or lone wolf forms of political violence.

This paper takes as its theme two forms of tribalism, though in either case, both patterns pose irregular challenges<sup>2</sup> to those actors who focus on militarized coercion or political violence. Even so, a common characteristic of tribes is the relative impermeability of the tribal structure, owing to the fact that classic tribal patterns often are distinguished by land and blood, or with a more abstract pattern—Aspirational tribalism—which retains its dominant ideology and passion, or some combination, while lacking direct blood ties. The first part of this paper, which focuses comparatively on

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1 The terms Ascriptive and Aspirational tribalism were introduced by Dr. Jeffrey Kaplan, "Tribalisms and Mobilization: Irregular Warfare in the 21st Century," Program on Irregular Warfare and SOF Studies. National Defense University, Washington, DC, 2012. The term 'malign' for Ascriptive or Aspirational tribalisms, which threaten US, security as introduced by Col. (ret) Chris Costa at this time.

2 Richard Schultz Jr. and Andrea J. Dew, *Insurgents, Terrorists, and Militias* (New York: Columbia University Press, 2006), x. We characterize irregular challenges and irregular warfare broadly here, and use Schultz and Dew's characterization that, in general, extremists will use "irregular warfare strategies and seek to employ all means, including catastrophic ones, to undermine the legitimacy and erode the will and influence of their state adversaries."

Arminius, T.E. Lawrence, and Wasmuss, combines into one theme questions on tribes and irregular warfare. As such, past tribal alliances with Western military regimes, no less than with royal central governments based in Kabul, variously resisted and welcomed influence for some political concessions but, as the following survey shows, because broader strategic political considerations often imposed many of those engagements, the West often looks predatory. So far, this has been the historical pattern. But we will then need to further define tribes and tribalism, and the relationship to political violence in particular. Through our analysis, it will be necessary to make the distinction of tribes and tribalism more precisely.

The next part of this study expands and deepens the argument that tribalism is a manifestation of al-Qaeda's illusory strategic alliance with the Taliban,<sup>1</sup> followed by the post-9/11 narrative that tribal alliances again played an important role in both Afghanistan and Iraq. To date, most post-9/11 discussions of tribes and warfare are relatively familiar and are centered on America's two major wars. Still, in light of al-Qaeda in the Arabian Peninsula, there are open questions that now focus on al-Shabaab in Somalia, ungoverned space, and on ideological aspirants and would-be-bombers like Umar Farouk Abdulmutallab.<sup>2</sup> So, doesn't the "underwear bomber" case dramatically illuminate an escalation in the importance of Aspirational tribalism, when a Nigerian can gain access to Arab tribes in its Yemen sanctuary?<sup>3</sup> Even closer to home is the case of Anwar al-Awlaki, an American product of Aspirational tribalism, who succeeded in making contact with al-Qaeda. Until his death, al-Awlaki became a prime English language propagandist who had remarkable success in influencing Americans to undertake Aspirational tribal routes to terrorist violence on the home front.<sup>4</sup>

What's more, tribalism poses serious questions on the nature of warfare. As a consequence, we will briefly consider future warfare in the aftermath of our wars. So we ask, in the context of a "global war on terrorism," with

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1 Alex Strick van Linschoten, and Felix Kuehn, *An enemy we created : the myth of the Taliban-al Qaeda merger in Afghanistan* (Oxford ; New York, Oxford University Press, 2012).

2 Jason Ryan, "Underwear Bomber Umar Farouk Abdulmutallab Pleads Guilty," ABC News, 12 October 2011.

3 Robert F. Worth, "Cleric in Yemen Admits Meeting Airliner Plot Suspect, Journalist Says," *The New York Times*, 1 February 2010.

4 Mazzetti, M., Eric Schmitt and Robert F. Worth, "New York Times, September 30, 2011, <http://www.nytimes.com/2011/10/01/world/middleeast/anwar-al-awlaki-is-killed-in-yemen.html?pagewanted=all>.



blanket troop withdrawals in Iraq, and Afghanistan winding down, then, will the U.S. revert back to a more conventional strategy and force structure for national security? If so, we argue that this is exactly the wrong strategy to address Aspirational tribal threats. Finally, we offer a new threat model for consideration, which explicitly considers tribalism through an irregular warfare lens. In many ways, our detailed examination of Aspirational tribalism—as a result of unrelenting attacks and successes against al-Qaeda—brings us full circle from classic tribal engagements in the style of T.E. Lawrence, to the more lethal Aspirational tribalism threat, and the likely proliferation of lone wolf threat in the West.

So, where will all of this lead us? What seems to have changed, in short, is not the importance and question of Islamic militancy and radicalization movements so much as the notion that studies of terrorism demand a rethinking of tribalism and modern warfare. Such an examination is at the heart of several cases considered here, not least the rise of Aspirational tribalism. Our work should move forward, too, with the goal of revealing the nature of tribalism to recast our understanding of the calculus for future threat streams.

### **3.4.2 Tribal auxiliaries and alliances**

As seen in the dim light of historical clashes between conventional western armies and irregular adversaries, Rome's confrontation with Germanic tribes in the Teutoburg Forest in AD 9 is a cautionary narrative. Whatever else we may say about the pre-Christian Roman Empire, it certainly used tribal auxiliaries and alliances to press beyond their frontiers. As we proceed to better understand tribalism and its explanation, as with Alexander Great's west versus east asymmetrical campaign, it's easy to accept that Romanization was on a trajectory course to collide with tribes. From our viewpoint it was something even more; it seems that ancient Germany was in a sense the crucible in which tribalism was tested against Roman civilization.<sup>1</sup>

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<sup>1</sup> A parallel dynamic can be noted in Islamic times (from AD 6) when the expanding Muslim empires based in Mecca, Baghdad and Damascus respectively used tribal forces to their advantage to fuel their rapid expansion. In these cases too, tribal perfidy constituted a major problem. Indeed, from that day to this, it was not unusual for tribal allies to change sides on the battlefield to assure participation on the winning side. The Ottoman empire (after the 15<sup>th</sup> century AD) held sway over the Muslim world primarily by their skill in utilizing tribal forces through a series of rapidly shifting alliances, which assured that no one tribal actor would gather sufficient force to threaten Ottoman power.

The evidence of tribal treachery in Germany notwithstanding, we argue that the real danger lies not in tactical losses to an adversary, but in the acceptance of bad assumptions about tribal “friends.” While in part this was the result of localized tribal dynamics, it also has roots to broader concepts such as “balanced opposition,”<sup>1</sup> that, much later, helps to explain tribalism and political violence in the Middle East today. Still, to understand both the underlying tensions of anti-Roman sentiments, and Roman miscalculations about Germanic tribes, especially their potential will to resist Roman imperialism, it’s important to draw from ancient sources. Tacitus suggested that the Romans wrongly believed that Germanic tribes were too preoccupied with internecine tribal disputes to unify and rise against Roman encroachments.<sup>2</sup> The final issue, in other words, is the idea that tribal cohesion eventually checked Roman military power.

It cannot be overemphasized, however, that Teutoburg Forest is an apt metaphor for asymmetric conflict. To be sure, Publius Quinctilius Varus, the Roman commander of the army of the Rhine, marched his three Roman legions deep into the heart of Germany’s dark forests.<sup>3</sup> Varus marched into German tribal territory, thought to be largely pacified. Fatally, Roman security rested with Arminius, a “Romanized ally,” who had led tribal troops under the Roman banner.<sup>4</sup> Arminius consciously channeled Varus and his legions into unfamiliar terrain. Using the terrain to their advantage, the Germanic tribes sprung their ambush and destroyed three entire legions. The Romans suffered a decisive defeat. Varus operated without sound reconnaissance on unfamiliar terrain. In the end, the Romans

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1 Philip Carl Salzman, *Culture and Conflict in the Middle East* (Amherst, New York: Prometheus, 2008), 14-16. Salzman defines balanced opposition as a social system that, in part, explains collective security in tribal structures. In the context of the Teutoburg Forest it’s important because tribal cohesion was not yet linked to religion, but to blood and land. Much Later, with the arrival of Islam, we will see religion as the dominant unifying factor in the Middle East.

2 Rose Mary Sheldon, *Intelligence Activities in Ancient Rome* (London: Frank Cass, 2005), 187.

3 Adrian Murdoch, *Rome’s Greatest Defeat: Massacre in the Teutoburg Forest* (Gloucestershire: Sutton Publishing Limited, 2006), 99. Roman Legions XVII, XVIII, XIX.

4 Sheldon, 178. Robert M. Cassidy, *Counterinsurgency and the Global War on Terror* (Stanford: Stanford University Press, 2008), 152. Teutoburg Forest is often cited as an example of asymmetric warfare. Cassidy suggests that the Rome’s conventional “Western way of warfare” confronted German barbarians. Consequently, the Romans lost their relative advantage to an irregular force.

proved vulnerable to treachery, and to a tribal strategy deliberately crafted to circumvent their strength.<sup>1</sup>

By considering recent tribal patterns of warfare in Afghanistan, Iraq, and as part of the broader “war on terrorism” in places like Yemen, some analysts have consciously examined the relationship between T.E. Lawrence of Arabia and his connection to irregular tribal warfare.<sup>2</sup> For the past decade, a popular drift of irregular warfare theory among strategists is the analysis of Lawrence and his successful engagement with tribes. For example, in his recent book, *Hero: The life and Legend of Lawrence of Arabia*, Lawrence biographer Michael Korda charted Lawrence’s progressive “thinking about how the Arabs might win their war against the Turks.”<sup>3</sup> In his own words, Lawrence “thought of the Arab aim, and saw that it was geographical, to occupy all Arabic-speaking lands in Asia.”<sup>4</sup> Put simply, the key drivers for the cooperation between a non-Muslim, white Briton and Arab tribesmen were, in the end, about ancestral lands, power, and post-war political concessions. To sum up, geographical pragmatism, rather than ideological passions, created the post-war remapping of the Middle East—a tribal *Realpolitik*, as it were.<sup>5</sup>

Still, it’s useful to comment that Lawrence pierced the tribal structure with the aim of creating an alliance that ejected the Ottoman Turks from Arab lands. In that light, few can argue successfully that harnessing tribes, which correspondingly aligns with Western military–political aims, is a fruitless effort. But now, from the benefit of our brief historical analysis, we may also preliminarily conclude that tribal alliances are not a new dynamic at all, and are a main empirical point of departure for understand-

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1 Robert M. Cassidy, *Counterinsurgency and the Global War on Terror* (Stanford: Stanford University Press, 2008), 152. Teutoburg Forest is often cited as an example of asymmetric warfare. Cassidy suggests that the Rome’s conventional “Western way of warfare” confronted German barbarians. Consequently, the Romans lost their relative advantage to an irregular force.

2 See, for example, Basil Aboul-Enein and Youssef Aboul-Enein’s, “A Theoretical Exploration of Lawrence of Arabia’s Inner Meanings on Guerrilla Warfare” *Small Wars Journal* (July 5, 2011), 10. The authors assert that Lawrence’s “contributions as a modern guerrilla leader and political strategist of the emerging nations indelibly assured his place, perhaps not alongside Clausewitz, Jomini or Mahan, but certainly in the annals of insurrectionary warfare.”

3 Michael Korda, *Hero: The Life and Legend of Lawrence of Arabia* (New York: HarperCollins Publishers, 2010), 29.

4 T.E. Lawrence, “The Evolution of a Revolt.” *Army Quarterly and Defence Journal* (October 1920), 7.

5 Thomas Friedman, “Remapping the Middle East, Maybe,” *The New York Times*, 9 January 2005. Popular New York Times columnist Thomas Friedman references T.E. Lawrence bragging about re-mapping the Middle East, though for a more comprehensive, and well-documented accounting of Middle East post-war political geography, readers should start with David Fromkin’s, *A Peace to End All Peace: The Fall of the Ottoman Empire and the Creation of the Modern Middle East*.

ing that modern warfare episodically includes building successful alliances with tribes, too. For some, tribal alliances—and their insurrectionary patterns—even as observed during the “Arab Revolt,” promised that tribes remained an important feature of warfare, and is a relevant strategy for countering terrorism and political violence this new millennium. Even as an uncertain and relative peace settles in among the modern tribes in Iraq and elsewhere, previously contending tribes struggling over local influence will likely remain a factor for future security questions in the West. We can conclude that while Ascriptive tribes have considerable short-term utility as allies, these alliances are often volatile and neither durable nor completely reliable.

And these tribal relationships and alliances particularly reveal their true character when they are not part of a natural order, rather when they are created artificially and are seen as expedient. Put differently, our examination so far reveals that tribal alliances do not demand deep anthropological knowledge, but instead are circumstantial, pragmatic, and convenient. In *The Rise and Fall of Al-Qaeda*, for example, author Fawaz Gerges argues persuasively that “Al-Qaeda was a marriage of convenience” between two ideological camps—between Egyptians and Saudi-Yemeni Jihadists. Gerges writes figuratively that this merger was an understandable alliance between “two Islamist tribes.”<sup>1</sup> From our perspective, too, it is indeed understandable that ideologies can be stretched to accommodate two ideological and divergent Al-Qaeda constituencies, mostly because they shared common grievances and the same Western enemy. And so, through the prism of a common enemy, we can come to understand such a union. After all, even with our brief examination of Arminius and the Germanic tribes, we observed that internecine squabbles were indeed set aside to channel hostilities toward a mutual Western enemy. This, in turn, leads us to remark that Al-Qaeda may very well fit a pattern of a global tribe, too.<sup>2</sup> In these regards, by transcending boundaries, sharing a common enemy, and—as we will examine closer later—with Aspirational tribalism developing as a 21<sup>st</sup> Century phenomenon, we argue that post-Ascriptive tribalism is a Jihadist alternative to the more orthodox patterns of ascription with a tribe.

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1 Fawaz A. Gerges, *The Rise and Fall of Al-Qaeda* (New York: Oxford University Press, 2011), 34. Gerges here speaks of the formation of an Aspirational tribe comprised of Jihadist elements of the many Ascriptive tribes in Arabia and Yemen and the less tribalized actors in Egypt.

2 See David Ronfeldt's, “Today's Wars Are less About Ideas Than Extreme Tribalism,” *The Christian Science Monitor*, 27 March 2006. In fact, the author convincingly writes that al-Qaeda members and affiliates are “extreme tribalists who dream of making the West start over at a razed, tribal level.”

It is beyond the scope of this study to examine a full accounting of Wilhelm Wassmuss's work with tribes in Persia during the First World War. Thus, we focus more generally on Wassmuss's capacity to represent the nature of irregular warfare, and build a successful alliance that had strategic implications.<sup>1</sup> All of this makes an elegant, if nuanced, tool of warfare—as it was with T.E. Lawrence and his Arab tribal alliance. Historian Robert F. Baumann has suggested that were Clausewitz here today he might agree that, “the passions and rationales that moves states to roll the dice of war differ little from those which arouse tribes or insurgents.”<sup>2</sup> Interestingly enough, tribal passions were inflamed, would-be Jihadists were made, and Kaiser Wilhelm of Germany engineered a rising of tribes in 1914 Persia, which ultimately failed. In short, the Germans unleashed the passions of militant Islam with their Turkish allies against the British.<sup>3</sup>

According to author Peter Hopkirk, Wassmuss “was soon to prove himself an uncomfortable thorn in the flesh of the British, and a growing threat to their presence in the region.”<sup>4</sup> Most important, perhaps, owing much to the phenomenon of Jihad, Wassmuss's biographer, Christopher Sykes systematically outlined German efforts to trigger a “Pan-Islamic rising” as well.<sup>5</sup> A closer look at the failed “Holy War,” however, as well as later calls for Jihad toward the end of the 20<sup>th</sup> Century, suggests that it is important to carefully examine the tides of popular legitimacy with such strategies.<sup>6</sup> The key historical lesson is that, while Western engineered tribal alliances have seldom been completely successful, tribal alliances formed by Muslim actors have often been more fruitful. We have noted the Ottoman Empire in this context, but more recently the rousing of Ascriptive Jihadist tribal passions defeated a Western army for the first time in the age of imperialism when a self-styled Mahdi (redeemer) in Sudan built a short lived Is-

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1 Salzman, 11. Again, we refer the reader to Dr. Salzman and the rich context he provides on balanced opposition, and how it relates to conflict in Arab cultures. Specifically, he observes that the “Arab culture addresses the universal problem of order and security in an ingenious and time-tested fashion.” And, he also stresses, “balanced opposition is an ingenious way to organize security.” So, the art of irregular warfare in the context of tribes requires careful, nuanced engagements that tap into the societal patterns of tribalism at its roots, in order to create a malleable alliance to go after a mutual enemy.

2 Robert F. Baumann, “Historical Perspectives on Future War,” *Military Review*, (March-April 1997), 8.

3 Peter Hopkirk, *Like Hidden Fire: The Plot to Bring Down the British Empire* (New York: Kodansha, 1994), 2.

4 Hopkirk, 106. We also learn that the British called Wassmuss the German ‘Lawrence.’

5 Christopher Sykes, *Wassmuss* (London: Longman's Green and Co. LTD, 1936), 43.

6 Gerges, 92. The calls for fighting the Jihad against the Soviets in Afghanistan resonated throughout the Muslim world. But Gerges makes the point that the call for Jihad against the US forces in Afghanistan did not have the same effect, meaning that calls for a “Holy War” possess varying degrees of popular legitimacy.

lamist state. In the 1930s, the alliance of Wahhabist ulama (men of religion) and the princely al-Saud family unleashed a multi-tribal jihad, which brought them to power and formed the modern state of Saudi Arabia. In the latter case, the Jihadist tribesmen had to be destroyed by a counter-jihad to stabilize the newly created kingdom.<sup>1</sup> To illustrate further, Al-Qaeda strategist Abu Musab al-Suri wrote that a Jihadi campaign should not be prosecuted “unless one has digested the principles, ideas and foundations.”<sup>2</sup> All these considerations underscore the point that engagements with tribes possess varying degrees of popular legitimacy and, as such, have internal political dynamics to carefully evaluate.

So, we wrap up our examination of historical tribal alliances—as with our cases of Arminius, Lawrence, and Wassmuss—by making some sense of tribalism in terms of warfare and political violence. We consider the extent to which those tribal alliances shared a common thread, despite not always sharing the same religion, or were consummated in a Pre-Christian–Pre-Islamic era, as in the case of Alexander the Great, and with Germanic tribes in the Teutoburg Forest.<sup>3</sup> Here again, we turn to the other side of the coin—when Wassmuss paradoxically formed a tribal alliance to wage Jihad with an Islamic partner, against their predominantly Christian enemies. But in the case of Islam, how can significant religious differences between Muslims and Christians be overcome for the sake of forming a strategic alliance? Or, is it just that our common framework for understanding po-

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1 On Sudan, see Murray S. Fradin, *Jihad: The Mahdi Rebellion in the Sudan*. (Lincoln, NE, Author's Choice Press, 1965, 2003). On Saudi Arabia, see Anthony H. Cordesman and Nawaf Obaid, *National Security in Saudi Arabia: Threats, Responses, and Challenges* (Westport, Conn., Praeger Security International, 2005). An enjoyable journalistic approach to this history is Robert Lacey, *Inside the Kingdom: Kings, Clerics, Modernists, Terrorists, and the Struggle for Saudi Arabia*, (New York, Viking, 2009).

2 Brynjar Lia, *Architect of Global Jihad* (Columbia University Press, 2008), 86.

3 Steven Pressfield, “It’s the Tribes Stupid” Steven Pressfield Online Blog, posted October 2006, <http://www.stevenpressfield.com/ep-1/>. Interestingly, Pressfield, a renowned fiction writer, soberly concludes that the so-called ‘clash of civilizations’ is much about tribalism, “not religion”. Pressfield is one of only a handful of writers that have explicitly made the tribalism-terrorism linkage, especially the point that tribalism was a key factor for Alexander, yet the Western-Eastern clash was in a Pre-Islam-Pre-Christian world. Indeed, tribalism is a blind spot in the literature, and this contribution seeks to address this gap, and provide a new analytical model to consider tribalism as a key component for further consideration.

litical violence in the aftermath of 9/11, which seems to eschew tribalism,<sup>1</sup> has discouraged us from examining political violence through a more practical, less emotive, tribal narrative?

Instead, when explaining Jihadi terrorism, Western strategists seem to focus on far more discordant and divisive questions on Islam and superficial interpretations of the Qu'ran. In part, though we are just beginning to scratch the surface to reach our conclusions in this paper, we must be prepared to accept the possibility that tribalism is an important social contract—still negotiable though—that transcends even religious factors, and yet as revealed, can be harnessed with practical implications for warfare, and with unlikely partners. The very manner in which we reconsider tribalism in the context of terrorism may be the better narrative, and perhaps *the* critical variable that helps us re-conceptualize future threat streams.

### 3.4.3 On tribalism and tribes: Definitions

Defining tribalism and tribes in the context that we seek to illuminate can be as challenging as defining terrorism itself. If, for example, terrorism is thought to be “fundamentally and inherently political,”<sup>2</sup> so too is tribalism. Tribes transcend the confines of the nation-state, and increasingly since 9/11, tribal dynamics are supplanting state power in places like Yemen and

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1 Ronfeldt. The author convincingly makes the point that “tribalism sounds too anthropological for modern strategists, it has not taken hold.” Still, it’s important to recognize that anthropologists have been leveraged to support US military ground forces in Iraq and Afghanistan. See also, for example, David Rohde’s article “Army Enlists Anthropology in War Zones,” *The New York Times*, 5 October 2007. Cooperation between anthropologists and US intelligence agencies however have never been smooth. The backlash from Project Camelot, an attempt to operationalize emerging Social Sciences in the context of Latin America, and in particular the revolution that brought Gen. Augusto Pinochet to power in 1973, damaged academic careers and caused a decades long breach in cooperation between anthropologists and the US intelligence community. Irving Louis Horowitz, *The rise and fall of project Camelot: studies in the relationship between social science and practical politics* (Cambridge, Mass.:MIT Press, 1974).

2 The concept of terrorism as “ineluctably” political is advanced most forcefully by Dr. Bruce Hoffman. See Bruce Hoffman, *Inside Terrorism*, Rev. and expanded ed. (New York: Columbia University Press, 2006), 40. While this was true in previous waves of terrorism, the religious wave, which began in 1979, has called the concept of terrorism as an exclusively political to the exclusion of religiosity or ethnicity into question. A counterargument may be found in Jeffrey Kaplan, *Terrorist Groups and the New Tribalism: Terrorism’s Fifth Wave* (London: Routledge, 2010), 24-26. Wave theory itself is now almost normative in its conceptualization of modern terrorism occurring in international waves which share ideology and tactics, even if terrorist groups they have no direct contact with each other. David C. Rapoport, “Modern Terror: The Four Waves,” in Audrey Cronin and J. Ludes, eds., *Attacking Terrorism: Elements of a Grand Strategy* (Washington DC: Georgetown Univ. Press, 2004), 46-73. By implication, tribes too have strong political dimensions; it would be a fatal mistake to conclude that tribes are monolithic in their political aims. Similarly, ties of blood are deeper at the family and clan levels than at that of the tribe. Religion and ethnicity are the most homogenous factors which link tribal actors together in Ascriptive tribalism.

Afghanistan, as well virtually every state in sub-Saharan Africa. Our aims, however, are not to engage in pedantic debates that anthropologists have yet to settle among themselves, but instead to offer a re-conceptualized interpretation of tribalism and tribes or, perhaps more precisely, induce a reassessment of tribalism through a decade of fighting networks of extremists since the 9/11 attacks. We believe that disentangling definitions of tribalism from anthropological debates can recast Islamic militancy as a form of radical tribalism in the context of a malign ideology, which will lead to more Aspirational tribalism in the future.<sup>1</sup> An equally distorting by-product of an elite-centered, top-down, “transnational Jihad”—answerable to al-Qaeda senior leaders—is that only a few scholars have linked the phenomenon to tribalism, and even fewer make the case that a failed al-Qaeda campaign will lead to Aspirational tribalism, where kinship can be substituted by virtual membership in a tribe.

Granted, we still must have a common understanding of tribes and tribalism before we can move forward. A broad survey of definitions and scholarly articles on tribes and tribalism, however, as well as our earlier reference to “balanced opposition,” suggests that we must settle on a straightforward definition of “tribe,” which will sustain our efforts to ultimately reach a new analytical framework for Aspirational tribalism. Bernt Glazer argues that ascription with a tribe means that “one is bound by a network of primordial obligations on the solid basis of well-structured genealogical ties.”<sup>2</sup> This definition is appreciably helpful in its simplicity.

On the other hand, to understand what we mean by tribalism, first consider the prevailing worldview during the post-Cold World era. In the early 1990’s, there was a flurry of articles, analysis, and debates on potential cultural cleavages throughout the world, which was to inevitably cause conflict with the West. Interestingly, Benjamin Barber wrote an important contribution in *The Atlantic*, making the case that “the two axial principles of our age—tribalism and globalism—clash at every point except one: they

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1 There is a considerable body of anthropological literature on defining ‘Tribalism’ and tribes. See, for example, Archie Mafeje, “The Ideology of Tribalism” *The Journal of Modern Africa Studies* Vol. 9, No. 2 (Aug 1971): 253. Mafeje discusses tribalism in the context of an ideology, but this article, like others that seek to define ‘tribes,’ does not clearly provide a workable definition of ‘tribalism’. Still, we are satisfied that tribalism is an ideology, which fits with our theme that Al-Qaeda in particular fits into tribal patterns.

2 Berndt Glatzer, “The Pashtun Tribal System,” in Chapter 10: “Concept of Tribal Society,” eds. G. Pfeffer and D.K. Behera (New Delhi: Concept Publishers, 2002), 265.



may both be threatening to democracy.”<sup>1</sup> But now, with the benefit of hindsight in a post-9/11 world, the pessimism that Western democracies are threatened existentially by terrorism is muted for the time being.

And still, the conflict between malign tribalism and globalism continues along the ideological contours of a struggling transnational tribal movement that fuels terrorism; this point is made in David Ronfeldt’s scholarly exploration of tribalism and segmental warfare.<sup>2</sup> In short, we agree that tribalism is an ideology. In a similar vein, Ronfeldt allows us to set aside the constraining language of anthropology and argue that al-Qaeda and their affiliates are an idiosyncratic, and insurrectional strain of tribalism, which is primordial to its core and turned dangerously outward.<sup>3</sup> But such a conclusion might prove premature here. So, while it is hard to deny that tribalism has, in general, played a part in political violence this past decade, the next part of this study intensifies our argument by focusing on al-Qaeda’s pact with Pashtun tribes, and will ultimately lead us to examine the dangerous convergence of Aspirational and Ascriptive tribalism with al-Qaeda and their affiliates.

#### **3.4.4 9/11 Era tribalism and conflict: Afghanistan and Pakistan**

Whatever else we might conclude about al-Qaeda’s alliance with the Taliban in Afghanistan, it certainly had a dreamlike, and scripted quality for bin Laden and his Jihadists. Author Peter Bergen observed that bin Laden sought refuge in Afghanistan and was inspired to follow the metaphorical path that the “Prophet Mohammad had himself made fourteen centuries earlier to escape the Pagans of Mecca and to build his perfect Islamic soci-

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1 Benjamin R. Barber, “Jihad vs. McWorld,” The Atlantic Online, (March 1992), <http://www.theatlantic.com/magazine/archive/1992/03/jihad-vs-mcworld/3882/#>

2 David Ronfeldt, “Al-Qaeda and its affiliates: A global tribe waging segmental warfare” (Santa Monica, CA: RAND Corporation, 2007), 50. Ascriptive tribalism should not be ignored in this context. While constituting less of a security threat than Aspirational tribalism, Yemeni, Palestinian and African terrorist groups have been known to force the cooperation of expatriates by threatening family members back home. Similarly, terrorist actors representing Ascriptive tribal entities interested in avenging family members killed by foreign troops or technology may constitute a terrorist threat as well.

3 Ibid., 40. Ronfeldt says, “...tribalism can make for a mean-spirited exclusivity and partiality too. Tribes and clans can be terribly sensitive about boundaries and barriers – about who is in the tribe and who is outside, about differences between “us” and “them”.” The paradox with this definition is that Aspirational tribalism will likely become less exclusive over time, because it’s membership will increasingly become virtual and based on acting independently with little to no personal contact among operatives—those who are inspired to act out their violence.

ety in the nearby town of Medina.”<sup>1</sup> Of greater interest, however, is the argument that much of Mohammad’s 7<sup>th</sup> century strategy was about consolidating a base of operations in Medina, building a tribal coalition, and ultimately preparing for a final victory in Mecca. Richard A. Gabriel’s *Mohammad: Islam’s First Great General*, looks at the tribal alliances in prescient detail, and has achieved its full place as a comprehensive examination of Mohammad’s generalship. Accordingly, Gabriel notes, “...no single tribe or feasible coalition of tribes in the Hejaz could hope to resist Mohammad and his Muslims through force of arms.”<sup>2</sup> In his own right, then, Mohammad eventually became a powerful master of irregular warfare in his time, exactly the kind of “ideological cohesiveness and *assibiya*, or tribal solidarity” that bin Laden seemed to play-out in Afghanistan—and much later in our narrative—with al-Qaeda affiliates in Yemen.<sup>3</sup> For example both the Taliban and al-Qaeda utilize the pre-Islamic concept of offering a man’s personal *baya* (oath of allegiance) to mark his fealty to an Ascriptive or Aspirational tribal leader. On a larger scale, the *baya* links tribes to each other and to central regimes (or foreign armies). The legitimacy of the practice is unquestioned as the Prophet himself used this form of alliance building behavior. However, just a *baya* is freely given, it can be freely withdrawn at any time, which accounts in part for the instability of Islamic states.<sup>4</sup>

These historical circumstances should directly affect our view of bin Laden through a tribalism narrative, because a by-product of bin Ladenism, which achieved little attention in the West at the time, was what Gerges called “raw tribalism,”<sup>5</sup> whereby bin Laden was able to harness passions, apply messianic religious fervor, and begin to unite disparate Jihadists, while at the same time seeking Taliban protection in a tribal sanctuary.

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1 Peter L. Bergen, *The Longest War: The Enduring Conflict Between America and Al Qaeda* (New York: Simon & Schuster, 2011), 21. Bergen asserted that bin Laden himself “would even come to refer to Afghanistan as the Medina of the new age”. The reference is to the Hijra, the flight from Mecca to Medina that marks the year 1 on the Muslim calendar. The concept has had a major influence in the development of Islamist terror, especially in Egypt where the Islamic Society, a group that embraced Hijra as modern metaphor, was responsible for the assassination of Anwar Sadat in 1981.

2 Richard A. Gabriel, *Muhammad: Islam’s First Great General* (Norman, OK: University of Oklahoma Press, 2007), 189.

3 Fawaz Gerges, *The Far Enemy: Why Jihad Went Global* (New York: Cambridge University Press, 2005), 176.

4 The *baya* relationship remains part of the modern Muslim world. See “Muslim Q&A,” (June 28, 2012), <http://islamqa.info/en/ref/23320>.

5 Gerges, *The Far Enemy: Why Jihad Went Global*, 176.

There are, at least, some recent studies of tribalism where scholars have explicitly contended that, “Islam, a civilizing force, has fallen under the spell of Islamists who are a tribalizing force.”<sup>1</sup> Still, few academics or terrorism experts have seriously considered tribalism and terrorism together in a broader study, because questions about malign tribalism is methodologically difficult, and more contentious than conventional studies that settle on widely accepted themes on militant Islam. After all, we argue that malign tribalism should be considered like other destructive ideologies, which are difficult to be discredited or dismissed out-of-hand, because their patterns are so amorphous. And if we consider Aspirational tribalism, at its very roots, it is emotional, intensely personal, and undetectable on the surface, which is precisely why the phenomenon is potentially so dangerous.

Consider the case of Humam Khalil al-Bulawi, an al-Qaeda Triple Agent—and Aspirational suicide bomber—a loner who made an ideological conversion to al-Qaeda, and like Arminius, betrayed his supposed allies—his CIA and Jordanian “friends.”<sup>2</sup> It is important here to challenge the exclusivity of a sophisticated al-Qaeda intelligence operation, however, not just because it obscures the notion of Aspirational tribalism as another possible explanation, but also because it allows us to see how an ideological journey can lead directly to a tribal sanctuary in Pakistan, then to a lethal betrayal in Afghanistan. Again, access to the tribal areas was accepted on an ideological basis, rather than by al-Bulawi’s tribal lineage. Still, this sanguinary examination of a deceptive alliance gone bad not only brings a discussion of warfare and tribalism to a context and level that has been almost completely ignored in most studies of political violence, but it also offers an argument for one of the most compelling and yet under-examined, and somewhat muted, aspect of bin Ladenism: the uniquely tribal contours of al-Qaeda’s ideological and virtual sanctuary, which inexorably becomes more important to comprehend as al-Qaeda struggles for its very existence in the tribal areas of Pakistan, and elsewhere.

As the “global war on terrorism” winds down, we will likely continue to see patterns of Aspirational tribalism. These pattern will be revealed by religious or ideological conversions and self-radicalization of those individu-

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1 Ronfeldt, 50.

2 Richard A. Oppep Jr., Mark Mazzetti and Souad Mekhennet, “Attacker in Afghanistan Was a Double Agent “ The New York Times, 5 January 2010. See, for example, Joby Warrick’s, *The Triple Agent: The Al-Qaeda Mole Who Infiltrated the CIA* (New York: Doubleday, 2011).

als alienated from society. We will continue to see migratory movements to alternative and virtual tribal sanctuaries, as available, not to mention the possibility of more localized Western terrorism, which will play-out because it's the safer sanctuary—the space in which unmanned drones won't likely operate. Without this missing thread, that is to say without serious attention to tribalism and irregular warfare, a future counterterrorism strategy will be overlooking a crucial dimension. Following from this, it's especially pertinent to ask, then, what lessons might be learned from coalition interactions with tribes in Afghanistan?

Historical context is, of course, often brought to bear on strategy and national security decision-making. But, as the tribal experiences of Alexander the Great illustrates, tribal populations most often responded with rebellion, or intermittent compliance. Yet, it is almost a theological certainty that tribal alliances are crucial channels through which those drawn to al-Qaeda will similarly seek to exploit. But the degree to which tribes were leveraged in Afghanistan as allies—the notable exception being the beginning of the ground war in 2001<sup>1</sup>—was not explicitly addressed publicly until 2010, a full 9 years into the war in Afghanistan. Then, *The Washington Post* elevated tribal warfare into open public discourse by highlighting, “Jim Gant, the Green Beret who could win the war in Afghanistan.” Reporter Ann Scott Tyson was quite explicit that Gant, a Special Forces Major, was fighting alongside Pashtun tribesmen in Afghanistan; however, she also reported that the “US military had no plans to leverage the Pashtun tribal networks against the insurgents, so Gant kept his alliances quiet.”<sup>2</sup> Even if tribal engagement was nested with a far-reaching, more coherent strategy for Afghanistan—which disappointingly it was not—by 2010, tribal engagement was far too little, and too late to affect a decisive

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1 Rumsfeld explains his vision for military reform,” *Washington Post*, 1 February 2010. It must not be forgotten that U.S. Special Forces and CIA officers merged their capabilities shortly after the 9-11 attacks, employing a classic Unconventional Warfare strategy, and the Taliban were routed in Afghanistan. As such, Secretary of Defense Rumsfeld cited the transformational nature of warfare in Afghanistan as a model for the future. In particular, Rumsfeld noted that the battle of Mazar represents an unrelenting linkage between U.S. conventional strength and unconventional necessity as demonstrated by Special Forces riding horses alongside indigenous forces, communicating with aging B-52's to direct new age, laser-guided munitions. Most dramatically, the employment of Special Operations Forces, Paramilitary CIA officers and unconventional warfare was the right balance of tactical flexibility needed to route the Taliban and al Qaeda. See also, for example, Gary C. Schroen's, *First In: An Insider's Account of How the CIA Spearheaded the War on Terrorism in Afghanistan* (New York: Ballantine Books, 20015), and Gary Bernstein's, *Jawbreaker: The Attack on bin Laden and al-Qaeda: A Personal Account by the CIA's Key Field Commander* (New York: Crown Publishers, 20015).

2 Ann Scott Tyson, “Jim Gant, the Green Beret who could win the war in Afghanistan,” *The Washington Post*, 17 January 2010, <http://www.washingtonpost.com/wp-dyn/content/article/2010/01/15/AR2010011502203.html>.

outcome in Afghanistan. Moreover, the notion that tackling tribalism in Afghanistan as a path to decisive victory is Quixotism at best. Not surprisingly, episodic cases of tribal engagement as a strategy leading to victory in Afghanistan fail to cohere convincingly.

In turn, the public discourse over Gant's "Tribal Engagement Strategy"<sup>1</sup> instead exposed two opposing viewpoints for fighting in Afghanistan: employing the "Hearts and Minds" strategy of classic popular war, meaning counterinsurgency, or alternatively applying a less ground-centric, counterterrorism approach. Vice President Joseph Biden favored a combination of Special Operations Forces and drones, decidedly, a counterterrorism design that was to focus more on remnants of al-Qaeda, rather than the broader Taliban–Pashtun insurgency.<sup>2</sup> Consistent with the distinctions of two such strategies, it is fundamentally too difficult to square tribal engagement with that of a counterinsurgency strategy, unless there is a comprehensive process for carefully measuring and managing tribal engagements on a grand scale. In other words, choosing, arming, and cultivating the right tribal partners has to be surgical and precise, or it risks undermining the central government, or the tribe in the next valley, which is, more often than not, equally as dangerous and counterproductive.<sup>3</sup> In short, large-scale tribal engagement has to be managed as a political–military priority, or it is best not done at all.

Beyond the usual rhetoric that tribes are the dominant social system in places like Afghanistan, Iraq, and Yemen, almost entirely missing from existing terrorism studies is a serious explanation of why counterterrorism policies do not explicitly address tribal engagement as part of a long-term strategy. Journalist Peter Bergen makes the case that even in the beginning of our ongoing war in Afghanistan, the Northern Alliance was too narrowly focused on going after bin Laden, rather than being "a strategic

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1 Major Tim Gant, "One Tribe at a Time," available at <http://blog.stevenpressfield.com>.

2 James Dao, "Going Tribal in Afghanistan," *The New York Times*, 4 November 2009, <http://atwar.blogs.nytimes.com/2009/11/04/going-tribal-in-afghanistan/>.

3 See, for example, Christopher P. Costa, "Phoenix Rises Again: HUMINT Lessons for Counterinsurgency Operations," *Defense Intelligence Journal*; 15-1 (2006): 135-154. Costa makes the case that tribal engagement had to be a priority in Afghanistan, but more importantly, tribal interactions have to be centrally managed—synchronized—to avoid becoming a series of disconnected tribal interactions, which potentially work at cross-purposes with broader political and military objectives, or even offset tactical objectives, too. Disappointingly, few of these prescriptions were adopted on a scale broad enough to make a difference in Afghanistan.

partner to defeat al-Qaeda and the Taliban.”<sup>1</sup> In any event, these points are now moot in the context of U.S. strategy in Afghanistan. With troop withdrawals precipitously announced by the Obama Administration, drone strikes in the tribal areas of Pakistan are still favored over any coherent or broad-based leveraging of tribal alliances.<sup>2</sup> Still, what remains as a tribal option for U.S. strategic planners is finding the means toward exploiting the self-defeating strategy of militants that push the limits of their own tribal engagements. Put differently, there is a tipping point where the Taliban, al-Qaeda, and other militants trigger a cycle of insurrectional violence against themselves. We will later examine the closest analogue to this phenomenon in Iraq by examining the U.S. experiences with Sunni tribes. But this leads to another most pressing question as far as terrorism and tribalism is concerned: not so much how coalitions can partner with tribes, but rather learning how better to counter terrorists and their affiliates from building their own tribal alliances. Maybe, this path is the better course to follow.

It is worth emphasizing, as noted above, that al-Qaeda is susceptible—in reverse—to a lethal process that David Kilcullen in *The Accidental Guerrilla*, calls “rejection.” This virulent dynamic is summarized when, for example, al-Qaeda moves into tribal areas, builds their malignant alliances, and predictably triggers a hostile Western response, whereby al-Qaeda “exploits” the tribal backlash against their Western interventionary adversaries.<sup>3</sup> This interventionary cycle happened throughout 3000 years of Afghan history, back to Alexander the Great, the British, the Soviet Union, and eventually with today’s milieu in Afghanistan, but it follows a familiar historical pattern: the foreigner becomes bogged down by tribal alliances and by the often-incomprehensible particularities of tribalism.<sup>4</sup> It is crucial to remember that Arabs in Pakistan’s Federal Administered Tribal Areas (FATA) are foreigners too, and perhaps have overreached with their

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1 Peter L. Bergen, *The Longest War: The Enduring Conflict Between America and al-Qaeda* (New York: Free Press, 2011), 42.

2 See, for example, Daniel Byman’s, “Taliban vs. Predator.” *Foreign Affairs*. 18 Mar. 2009, <http://www.foreignaffairs.com/articles/64901/daniel-byman/taliban-vs-predator>.

3 David Kilcullen, *The Accidental Guerrilla: Fighting the Small Wars in the Midst of a Big One* (New York: Oxford University Press, 2009), 34.

4 See, for example, Jonah Iank’s, “Invading Afghanistan, Then and Now.” *Foreign Affairs*. 19 Aug. 2011. Web. 30 Jan. 2012. <<http://www.foreignaffairs.com/articles/68214/jonah-blank/invading-afghanistan-then-and-now>>.

tribal hosts to a certain extent; this is an al-Qaeda vulnerability.<sup>1</sup> Above all, this dynamic is at the very heart of tribalism, and Kilcullen references the powerful influences of tribal tradition, which elucidates our point that whether with a counterinsurgency, or with a counterterrorism strategy, tribalism will be a pattern that has to be considered, and in some cases, exploited by both sides of the fight.<sup>2</sup>

Such an approach that overreaches with tribes would, of course, pose a grave danger for those who push beyond the tipping point, and can be self-defeating. At some level too, there must be an effective counter narrative to go along with any U.S. efforts to accelerate tribal interventionary backlash against al-Qaeda. Yet this sort of unconventional back and forth with tribes may still require a complementary variant of the U.S. interventionary strategy that worked in 2001: fewer conventional forces, a small footprint of Special Operations Forces left in place to work with Afghan partners,<sup>3</sup> and balanced with limited counterterrorism operations, and discreet, surgical tribal engagements designed to co-opt and reward key tribes that will neutralize al-Qaeda. A primary value of this strategy is that fluid alliance relationships are traditional among Afghan tribes. These tribes are conservative by nature and highly suspicious of innovations (*bida*) of any kind. This makes tribesmen resistant to non-traditional tactical approaches in the military sense, as well as changes in their understandings of law, of gender, et al. On the other hand, the best possible outcome for the Taliban–Pashtun insurgency is some kind of political arrangement for the cessation of hostilities, because strategists are already signaling the abandonment of any notion of counterinsurgency operations on an appreciable scale. In fact, the U.S. counterinsurgency doctrines' ex-

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1 This pattern of Wahabi fighters from Saudi Arabia wearing out their welcome in Afghanistan is long standing, with Afghan tribes disgusted by the unreasoning violence of the Arab fighters. Arab fighters were first relegated to isolated outposts. Their numbers were always considerably smaller than was apprehended by Western intelligence due to the emergence of Giles Kapel called 'jihadist tourism', where organized tours of young Arabs from Saudi Arabia would enter Afghanistan, pose for photos with AK-47s, and then return to their country of origin with tales of jihadist daring do backed with photographic proof of their exploits. Giles Kapel, *Jihad : the trail of political Islam* (Cambridge, Mass., Harvard University Press, 2002), 148.

2 Kilcullen, 38.

3 See, for example, Bing West's, *Both Sides of the COIN.* Foreign Affairs. 18 Dec. 2011. Web. 12 Feb. 2012. <<http://www.foreignaffairs.com/articles/136960/christopher-sims-fernando-lujan-and-bing-west/both-sides-of-the-coin>>. Bing West defends his thesis that the U.S. military will "predictably" depart from broad counterinsurgency programs that embrace large-scale nation building. Still, he agrees with some alternative views on one salient point: that Special Forces advisory teams are crucial to future security in Afghanistan.

istence or revival anywhere in the world is at risk.<sup>1</sup> The reaction to these kinds of open strategy discussions does little to deter the Taliban and al-Qaeda; rather, it is probably enough to lead them to escalate attacks to gain as much ground as possible, which likely provides leverage for any potential peace negotiations, or post-war political concessions.

So it goes, too, while we are debating strategy, our adversaries in the tribal areas have already waged a lethal and protracted tribal struggle. Alarming-ly, traditional tribal leaders were systematically destroyed by the Taliban in some places, and were replaced by more “compliant” tribal leaders.<sup>2</sup> It seems that the Taliban have executed a lethal tribal campaign, while the Western coalition dismissed any serious notion of a tribal strategy, other than crucially effective drone strikes that raise the cost of any al-Qaeda gatherings, or open training in their tribal sanctuary, at the risk of increasing alienation of local tribesmen. In covering that tribal ground, this paper argues another important point. We assert that the putative risk when all is said and done is not as much about whether militants hiding in tribal sanctuaries will be able to plan and execute attacks in Afghanistan, as much as those militants that leave for the West, or go to other sanctuaries to join al-Qaeda affiliates. Rather, as Jessica Stern labeled it, perhaps the greater concern, then, is the “protean” nature of our adversaries, and how they will adapt. Worse still, Stern reminds us that Mir Aimal Kansi’s 1993 lone wolf attack against CIA employees in Langley, Virginia, meets our definition of malign tribalism at some level.<sup>3</sup> Moreover, a logical consequence of post-Ascriptive tribalism is that the al-Qaeda movement, while leaving in place an uncertain constituency in Afghanistan and Pakistan, will seek a greater appeal beyond the FATA. Though the Manichean worldviews of the Taliban and al-Qaeda holdovers will likely persist at some level, we worry about those extremists that breakout and get to the West will be even better trained and more radicalized, than Kansi. In the end, tribes still matter. Our re-conceptualization of tribalism matters even

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1 See, for example, David H. Ucko’s, “Counterinsurgency after Afghanistan: A Concept in Crisis.” Prism. Dec 2011. Web. 11 Feb 2012. <http://www.ndu.edu/press/counterinsurgency-after-afghanistan.html>.

2 Bruce Hoffman, “A Counterterrorism Strategy for the Obama Administration,” *Terrorism and Political Violence* 10, no 2, 2009, 366. Hoffman says “some 200 Maliks” have been murdered and substituted with more “compliant” leaders.

3 Jessica Stern, “The Protean Enemy.” *Foreign Affairs*. 1 July 2003. Web. 12 Feb. 2012. <<http://www.foreignaffairs.com/articles/58995/jessica-stern/the-protean-enemy>>. Stern’s thoughts on al-Qaeda’s probable move toward “lone wolf” terrorism are somewhat dated, but completely consistent with our theme that this is the logical path for al-Qaeda adherents and their affiliates in the future. Moreover, Stern notes that Mir Aimal Kansi described his 1993 attack against CIA employees as something “between Jihad and tribal revenge.”



more: radicalization waged under the banner of a slowing, but still relevant global movement, which is a consequence of its very survival, but also the deterritorialization of al-Qaeda in the FATA, under the pressure to move to other sanctuaries, or to quietly reconstitute in the West.

### 3.4.5 9/11 Era tribalism and conflict: Iraq

So, if Afghanistan's *Mujahideen* spread like an "Islamist contagion"<sup>1</sup> in the aftermath of Afghanistan's 1980s-era Jihad, what, then, is the global implication of leftover fighters from the war in Iraq? And having established a framework for thinking about tribes in Afghanistan, how, then, does our examination of tribes square with the war in Iraq? In short, we will demonstrate that tribes and tribalism in Iraq are communicative of our point that de-territorialization of al-Qaeda in Iraq is a direct result of their overreach, and illustrative of just how far al-Qaeda's excessive use of violence and provocation led to their own destruction. Ultimately, al-Qaeda's missteps set in motion their eventual implosion in Iraq. There were, of course, instinctive and effective U.S. responses to the tribal backlash, which exploited al-Qaeda's miscalculations. Only then did a new generation of U.S. military talent, freed from the indelible markings of a poorly conceived conventional military strategy—and hunt for non-existent weapons of mass destruction—come to appreciate tribes as a crucial ally.

So far this study has implied that an examination of al-Qaeda's tribal strategy in Iraq might reveal useful threads of a broader terrorism narrative. Indeed, we agree that those foreign fighters who have fought in Iraq may live to fight on other battlefields. For example, Peter Bergen and Alec Reynolds argued relatively early on that foreign fighters drawn to Iraq would eventually seek out other fields for continuing their violence.<sup>2</sup> More alarmingly still, approximately 4000 foreign fighters were motivated to make their way to Iraq to kill its foreign U.S. invaders.<sup>3</sup> But, as suggested throughout this paper, these kinds of alliances are key ingredients for making better-trained terrorists who are ripe for exporting political vio-

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1 John K. Cooley, *Unholy Wars: Afghanistan, America and International Terrorism* (London: Pluto Press, 2000), 10.

2 Peter Bergen and Alec Reynolds, "Blowback Revisited." *Foreign Affairs* 84, no. 6 (November/December, 2005), 2-6.

3 Ahmed S. Hashim, *Insurgency and Counter-Insurgency in Iraq*, (New York: Cornell University Press, 2006), 12. However, as in Afghanistan, foreign jihadists eventually alienated Iraqi tribes, leading in part to the Sunni Awakening. Defense Department, U. S. M. C. U. (2009). *Al-Anbar Awakening, V. 1, American Perspectives: U.S. Marines and Counterinsurgency in Iraq, 2004-2009*, (Quantico, VA, Marine Corps. University Press, 2009).

lence. Notwithstanding the lessons about leftover foreign fighters from Afghanistan's first Jihad, the real problem in Iraq was the strategic alliance of al-Qaeda with Sunni tribes. To be sure, Sunni tribes underwent an artificial retribalization process, which was a direct result of the power vacuum created by the U.S. invasion in 2003. In other words, the U.S. invasion of Iraq disturbed the traditional tribal equilibrium, and al-Qaeda shrewdly aligned with Sunni tribes<sup>1</sup> who feared the emergence of the Shi'ite majority to positions of power. Taken together, one sees the danger of a disturbed social system that unleashed improbable mergers between otherwise disparate groups. Those violent extremists coalesced purely because they shared a mutual enemy, which is inherently a manifestation of tribal particularism.<sup>2</sup>

Before turning to investigate tribalism outside of Iraq, namely those drawn to al-Qaeda in the Arabian Peninsula, this study needs to pause to finish our discussion of al-Qaeda's overstretch in Iraq. Following from this, and especially important in terms of future regional policy calculus, we will provide critical commentary on the implications of U.S. overstretch in Iraq, too. While this study has established the crucial point that al-Qaeda's strategy in Iraq proved largely counterproductive, other scholars are left to more closely examine the reasons why military strategists missed so widely on tribal engagement at the outset of the Iraq campaign. In the end, the U.S. exploited al-Qaeda's missteps, but we fundamentally miscalculated the importance of tribes early on, so perhaps we were more lucky than good.<sup>3</sup>

Yet, the future of Iraq is still an open question, and more time is needed to elapse before final conclusions may be drawn. But Iraq already seems to

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1 Montgomery McFate, "The 'Memory of War': Tribes and the Legitimate Use of Force in Iraq," in *Armed Groups: Studies in National Security, Counterterrorism, and Counterinsurgency* ed., Jeffrey Norwitz (Newport, RI: Naval War College Press, 2008), 296.

2 Salzman, 16. We say "inherently tribal" because it fits our examination of balanced opposition. Salzman says, "Balanced opposition emphasizes particular loyalties: my lineage against the other lineage; my tribal section against the other tribal section; my tribe against the other tribe; Muslims against infidels." See also, for example, Montgomery McFate's, "The 'Memory of War': Tribes and the Legitimate Use of Force in Iraq," in *Armed Groups: Studies in National Security, Counterterrorism, and Counterinsurgency* ed., Jeffrey Norwitz (Newport, RI: Naval War College Press, 2008), 298. McFate, a cultural anthropologist by training, asserted, "the most common form of tribal collective action is the blood feud." Accordingly, the U.S. intervention in Iraq, as with al-Qaeda's excessive violence, triggered a predictable cycle of tribal violence and counter-violence consistent with long-standing anthropological explanations for this tribal phenomenon.

3 See, for example, Najim Abed AL-Jabouri and Sterling Jensen, "The Iraqi and AQI Roles in the Sunni Awakening," *Prism*. Dec 2010. Web 25 Feb 2012. [http://www.ndu.edu/press/lib/images/prism2-1/Prism\\_3-18\\_AL-Jabouri\\_Jensen.pdf](http://www.ndu.edu/press/lib/images/prism2-1/Prism_3-18_AL-Jabouri_Jensen.pdf).

have compelled the U.S. to begin an inexorable, deliberate military disengagement from the Middle East. Will such a U.S. drift away from the region increase the potential for malign tribalism elsewhere in the region? And, what, then, does it mean when some of these fighters breakout to exploit tribal passions beyond Iraq, because they have a shared enemy. And what has al-Qaeda learned about the numbing consequential cycle of reprisals and counter-reprisals of political violence against tribes? In point of fact, al-Qaeda affiliates in Yemen seem to be leveraging and building tribal alliances, and they have opened a new front.<sup>1</sup> Disappointingly, there is little evidence to suggest that al-Qaeda in the Arabian Peninsula will make the same kind of mistakes that were made with tribes in Iraq, which means that counterterrorism measures must exploit al-Qaeda mistakes.

Although lessons on insurgency and raw tribalism from Thucydides era are explicitly sparse, some historical comparisons are worth considering. Words like *quagmire* and *slippery slope* were not only used to compare U.S. interventions in Iraq and Afghanistan to Vietnam, but also to describe ancient examples of strategic overstretch. Not surprisingly, historians have compared the ancient Athenian invasion of Sicily during the Peloponnesian War to the U.S. intervention in Iraq.<sup>2</sup> Correspondingly, at a time when the U.S. had not suffered from any major attacks in the homeland since 2001, the U.S. invaded Iraq in 2003, and opened a new military theater of operation as part of its broader “War on Terrorism.” In short, some suggest that Sicily and Iraq are a metaphor for several ideas linked to our narrative: First, al-Qaeda and their affiliates will continue to exploit any U.S. miscalculations, such as they attempted to do with the U.S. intervention in Iraq, and like the Spartans did to the Athenians in Sicily. Secondly, the U.S. interventionary experience in Iraq—regardless true U.S. intentions—reinforces a persistent narrative that the U.S. is attacking Islam. Thirdly, it demonstrates that al-Qaeda exercises remarkable operational flexibility for seeing strategic opportunities with tribes. Finally, al-Qaeda defeated itself in Iraq, as can be argued for the Athenians in ancient Sicily.

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<sup>1</sup> Gerges, 137.

<sup>2</sup> Victor David Hanson, *A War Like No Other*, (New York: Random House, 2005), 213. Hanson calls the Athenians invasion of Sicily during the Peloponnesian War a “quagmire”. Drawing largely from Thucydides’ ancient account of the Peloponnesian War, students at the Naval War College studying lessons from ancient history during the height of the Iraq war often were led to consider Athenian overstretch as a metaphor for the U.S. intervention in Iraq. See also, for example, R.B., Strassler’s, *The Landmark Thucydides* (New York: Simon & Schuster, 1996), 427-8.

But Iraq may still be interpreted as a pyrrhic victory for al-Qaeda, because it energized insurrectional goals elsewhere, which already seem to be budding in Yemen. So, these reflections all give credence to our theme that tribal patterns pose challenges and opportunities for political violence, and those charged with countering political violence. In the end, a central element of any counter-strategy must consider tribal dynamics at some level. As such, leveraging tribes persuasively depends on a sophisticated, properly crafted strategy, and may very well be a decisive factor for undermining remnants of al-Qaeda.

#### **3.4.6 On tribalism and irregular warfare: A “New Trinity” model**

Importantly, Yemen can be seen as a convergence of our re-conceptualized definition of malign tribalism and political violence, and can be summed up as a post-Iraq progression, and though no model is a panacea, it is a beginning point for considering undercurrents of irregular warfare, which are manifest in other places where the state is weak and inherently tribal.<sup>1</sup> Considering Yemen as a case study by which we can theorize about more Aspirational tribalism in the future, not only fits our narrative, but it is illustrative of a harmful imbalance of a weak state with tribes as the dominant social fabric. Although not explicitly covered in this paper, we argue that the lessons learned regarding tribalism in the Middle East would be of preeminent value in dealing with conflicts in Africa, which is emerging as the key theater of U.S. operations in the post-Afghanistan era. Paradoxically, even when the weak state and its extremist actors are contained, or when the tribes “reject” a malign tribal influence, the West still has to contend with self-radicalized violent extremists who may resort to political violence to achieve their ends. And this model can just as easily be applied to Somalia, Pakistan, and other places where malign tribalism can be grafted to a dominant tribal landscape.

Still, as we have stressed throughout this paper, the West must develop more sophisticated partnerships, which means that in the aftermath of Iraq and Afghanistan, the U.S. must work tirelessly with states and their security and intelligence services to accelerate the process of “rejection” in

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<sup>1</sup> Carl von Clausewitz, *On War*, ed. & trans. Michael Howard and Peter Paret (Princeton University Press, 1976), 88. Clausewitz is frequently referenced on his conclusions on understanding “the war on which they are embarking.” Clausewitz has been variously attacked and revered for his magisterial work. It goes well beyond the scope of this paper to delve too deep into the debates, nor make the mistake of shallow analysis that does not do justice to the work. Still, *On War* is a classic because it is timeless, and its principles transcend changes in warfare, but is still relevant as a common frame of reference for thinking about warfare, whether conventional or irregular.

any ungoverned space that may be used as a sanctuary. In this respect, it is both feasible and vital for the U.S. to develop a model that will “red flag” malign tribal threats emerging primarily from failed states and ungoverned spaces. Although unilateral action still remains an option for the West, as the bin Laden raid demonstrated, there are political consequences for such actions, and U.S. national security decision-makers must inevitably weigh and consider all options, but working with partners more discreetly is likely more acceptable than large-scale U.S. military operations. In a time when many tend to regard U.S. unilateralism as a negative extension of power, such options remain available in any future U.S. strategic calculus. In places like Pakistan, and even Yemen, ungoverned and tribal space often times straddle national boundaries, so interventionary decisions are internationalized and complex, yet tribal affiliation is the more important social identity that matters most on-the-ground, so it is there that malign actors have to be relentlessly pressured.

To the extent that the reader is now better prepared to recognize that this line of inquiry demands serious attention, it is time to better explain why this should be so, thus we resort to our version of a “New Trinity” model<sup>1</sup>:

Consider that geography, historical circumstances, and tribal affiliation are often constrained to a certain extent by political boundaries, although, as we have seen throughout the Middle East, these boundaries are artificial, and are less important than those that are based on ascription with a tribe. At the same time, because these areas of the world nonetheless progressed as nation-states, we can still consider the “Clausewitzian Trinity” a useful way to think about irregular warfare, and to think about malign tribalism, too. Edward J. Villacres and Christopher Bassford in a *Parameters* article, “Reclaiming the Clausewitzian Trinity,” wrote that Clausewitz defined the essential trinitarian parts as: “primordial violence, hatred, and enmity; the play of chance and probability; and war’s subordination to ra-

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1 See, for example, Sebastian L.v. Gorka’s, The Age of Irregular Warfare So What? JFQ. Issue 58 3RD quarter 2010. Web. 3 March 2012. [http://www.ndu.edu/press/lib/images/jfq-58/JFQ58\\_32-38\\_Gorka.pdf](http://www.ndu.edu/press/lib/images/jfq-58/JFQ58_32-38_Gorka.pdf). We believe that this article is an important and valuable contribution that coherently discusses Clausewitz in terms of today’s irregular warfare—in theory and practice—in order to adapt the ‘Trinity’ to current circumstances, but not to dispense with the work that has been so valuable to military planners for generations. Gorka recognized the “egalitarian” nature of the “Irregular Warfare Age”, as we do, too, by stressing warfare, tribes and their egalitarian nature as we have iterated throughout this paper in terms that Anthropologists like Salzman and Kilcullen would recognize. So, we too use Clausewitz as a point of departure to make sense of Irregular Warfare in places like Yemen. Yet, we are more expansive in terms of setting a model that helps us better understand the future risks of Aspirational tribalism.

tional policy.”<sup>1</sup> In addition, Villacres and Bassford highlight a more recent interpretation that defines the trinity as the “people, army, and government.”<sup>2</sup> These definitions are incomplete for our purposes without some additional context on tribalism. Rather than learning the essential parts of Clausewitz theory and defining what war is, one instead finds, at first glance, a somewhat useful way to understand that where societal patterns are essentially rooted to tribalism, and when the state is considered weak, groups like al-Qaeda in the Arabian Peninsula will see strategic opportunities.

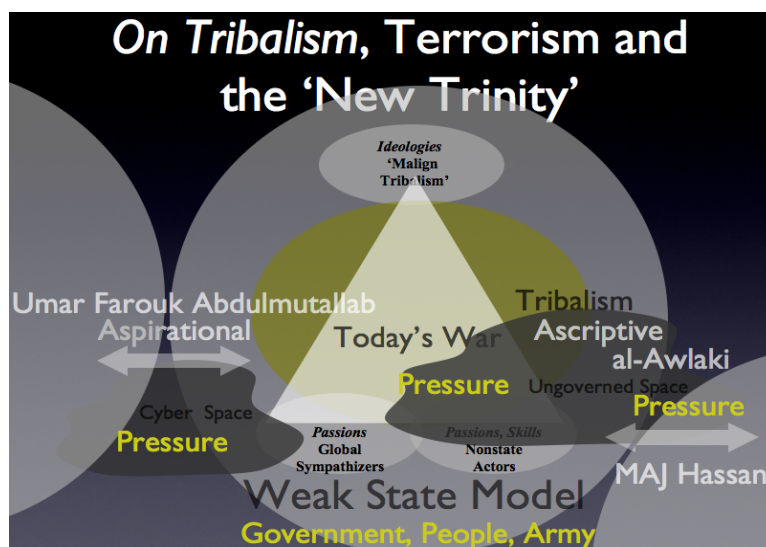


Figure 28. Tribalism and the “New Trinity.”

1 Edward J. Villacres and Christopher Bassford, “Reclaiming The Clausewitzian Trinity,” *Parameters*, 25 (Autumn 1995), 9-10. See also, for example, Christopher Bassford’s *Clausewitz in English: The Reception of Clausewitz in Britain and America 1815-1945* (New York: Oxford University Press, 1994).

2 See, for example, Harry G. Summers, Jr., *On Strategy: A Critical Analysis of the Vietnam War* (Novato, Calif.: Presidio Press, 1982). Villacres and Bassford in “Reclaiming The Clausewitzian Trinity,” attribute the government, people, army definition to the late Colonel Harry Summers in his book, *On Strategy: A Critical Analysis of the Vietnam War*. There can be no doubt, however, that Summer’s was influential to a generation of officers in the aftermath of Vietnam; a generation that may have sought some catharsis because of their recent war in Vietnam, so we will take a moment to comment here on Summer’s influential work. We have no fundamental argument with Summer’s definition: people, army, government, as a model in the context of war; we do, however, caution those who might draw the wrong lessons from our experiences in Iraq and Afghanistan. Consider Stephen L. Melton’s comment in, *The Clausewitz Delusion: How the American Army Screwed Up the Wars in Iraq and Afghanistan* (Minneapolis, MN: Zenith Press, 2009), 17. Melton commented critically on Summer’s interpretations of Clausewitz, he wrote: “If our cathartic reaction to defeat in Vietnam was the genesis on neo-Clausewitzian, thought, our debacle in Iraq may be its swan song.” In other words, there are limits to Clausewitz, and Summers fundamentally used Clausewitz and the Vietnam experience to untangle and make sense of what he viewed as a complete failure to apply conventional Clausewitzian thought and principles to strategy in Vietnam. We worry that there is a yet-to-be-written work that will cause the same intellectual mischief that Summer’s precipitated with his work *On Strategy*.

Before proceeding further with our model, it is prudent to provide a review of the most important terms we will use. The first term that requires revisiting is our specific re-conceptualization of an ideology: malign tribalism. Recall that we define malign tribalism as an idiosyncratic ideology that mimics primordial ties that would normally fit an anthropological definition of a tribe. Both Ascriptive and Aspirational forms of tribalism may emerge in malign forms. As such, we make the assumption that members acting-out these ideologies would reject our assertion of tribalism; rather they would argue they are religiously inspired, and defenders of their faith. Inherent in such a claim, however, is the conception of *umma* (community of believers), which was seen by the Prophet as the ultimate Aspirational tribe, which would be composed of all Muslims. A theological discussion here only serves as an accelerant to fuel their quixotic pursuit for legitimacy, which we find counterproductive.<sup>1</sup> In short, our definition of ideology corresponds to a malignant and corrupted strain of tribalism. Those adherents of violent extremist movements—like Umar Farouk Abdulmutallab—were inspired and drawn-in to a malign transnational tribe in Yemen: a weak state with ungoverned and distinguishable tribal areas, where our definition of a “Trinitarian” imbalance holds true. Even if Ascriptive tribal identities in places like Yemen are conceived as a traditional societal pattern, it can be both constraining and enabling. To be sure, once mobilized and protected in tribal areas, non-state extremist actors—like the late Anwar al-Awlaki—tend to be deeply embedded, and suspiciously independent of whatever Ascriptive tribes were responsible for supporting them and, therefore, they are not easily dismantled, and must therefore be targeted.<sup>2</sup>

The final concept that requires elaboration in terms of our model is the social phenomenon of Aspirational tribalism—harnessing passions of a globalized movement—where those seeking membership with a malign transnational tribe like al-Qaeda in the Arabian Peninsula are subsequently trained in ungoverned tribal space in the hopes that they can eventually attack targets in the West. Our contention is that, in the long run, if those adherents that are inspired to make such a journey are contained in those

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1 Attempts have been made to engage Jihadist theology with a counter reading of the sources. These efforts have proven of little value, and indeed, counterproductive, as in the massive bilingual text, Ghazi bin Muhammad bin Talal, ed., *True Islam: and the Islamic Consensus on the Amman Message*, third edition, (Amman, Jordan: No publisher listed, 2006).

2 Mazzetti, Schmitt, and Worth, “Two Year Manhunt Led to Killing of Awlaki in Yemen.”

weak states, then, it is indeed a localized problem, but this does not account for homegrown terrorism.<sup>1</sup>

The final caveat that should be taken into consideration is the downstream effect of successfully thwarting extremist movements in places like Yemen. In spite of the fact that counterterrorist efforts in Yemen might prove successful, Aspirational tribalism can still develop virtually through ideological messaging to those who seek membership. And so, the other threat to consider is those who self-radicalize, and reside in the West. Accordingly, emphasis must be placed on preventing lone wolf actors such as Major Malik Hassan, the Fort Hood attacker, which demands that we should expand future research on a more detailed examination of this solitary manifestation of Aspirational tribalism. Still, our “New Trinity” model seems to hold for Hassan too; al-Awlaki inspired Hassan to act from his tribal sanctuary in Yemen, with all of the dynamics associated with local tribes, a weak state, and a malign ideology taking root.<sup>2</sup> This trend of lone wolf actors, however, may very well prove to be exceedingly difficult to predict and to stop. If our examination of Yemen and tribal dynamics through a Clausewitzian lens challenges more conventional ideas of tribalism in the Middle East and Afghanistan, this current trend may be the next chapter in the threat narrative, but it will certainly play out in the West.

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1 Bergen, 246. Bergen notes that in 2009 there were “a record 43 Jihadist terrorism cases against US Citizens and residents.” Bergen outlines other cases, too, that fit our definition of Aspirational tribalism and ‘Lone Wolf’ terrorism in a chapter titled “The United States of Jihad”. Some of the cases Bergen examines will be addressed later in our paper, suffice it to say, those other examples are Somalis, Afghans, and even Jews who convert to militant Islam, although again our central theme suggests that many of those cases are a form of malign terrorism that can be studied and examined further using our ‘Trinitarian’ framework.

2 David Johnston and Scott Shane, “US Knew of Suspects Tie to Radical Cleric,” New York Times 9 November 2009. Web 10 Mar 2012. See also, for example, Scott Helfstein’s, “Edges of Radicalization: Ideas, Individuals and Networks in Violent Extremism.” Combating Terrorism Center. February 2012. Web 10 Mar 2012. <http://www.ctc.usma.edu/posts/edges-of-radicalization-ideas-individuals-and-networks-in-violent-extremism>. These contributions outline the direct links between Awlaki and Major Hassan, which fits our model of Aspirational tribalism to a certain extent. Hassan was inspired and motivated to act by Awlaki, while he was operating from ungoverned space in a tribal sanctuary in Yemen. And Hassan self-radicalized and acted out his political violence in the West.



### 3.5 In-group/out-group distinctions—neuroscience findings and upshot

*Dr. Emile Bruneau*

For many, the U.S. is viewed as “the enemy.” Obviously, safeguarding American lives requires addressing two components of threat from people who hold this view: decreasing their capability to do harm, and decreasing their motivation to do harm. While compromising an “enemy group’s” capability to harm the U.S. falls largely outside of the purview of social science, understanding and addressing the motivations behind violent aggression falls squarely in the realm of social psychology. Much research in social psychology has focused on more innocuous forms of intergroup conflict between arbitrarily assigned groups, or between ethnic groups in multicultural societies. Many (but not all) of the insights from these studies join an emerging focus specifically on the psychological biases affecting conflict groups to provide some guidelines for recognizing and addressing the root motivations of political violence.

Some of the forces driving conflict and inhibiting reconciliation are clear and tangible: competition for limited resources, a history of violence, and differences in cultural and religious beliefs. Inter-group antagonism and political violence can clearly be motivated by such factors: a young man might be motivated to commit an act of violence against the U.S. because his relative was killed by a drone strike; because he believes that his land or resources are being stolen; because he sees his cultural or religious beliefs threatened. Accompanying these socio-political factors is a collection of psychological factors that can also motivate hostility. The same young man could be tipped towards violence, for example, by extreme empathy for the suffering of in-group members, and lack of empathy for out-group members; because he views Americans as untrustworthy or irrational; because he views American motivations as unworthy rationalizations rather than reasonable justifications. These psychological biases can be just as potent as political factors in motivating intergroup aggression.

In this paper, we highlight examples of “hot” and “cold” psychological biases that help drive intergroup hostility and prevent the resolution of intractable conflicts, suggest how these biases can (and cannot) be reduced with positive interventions, and highlight the potential lessons for people tasked with safeguarding American national security.

### 3.5.1 Psychological biases

#### 3.5.1.1 *Empathy*

Much of the time, we feel pain or sadness in response to another's suffering. A key component of this response is the suite of cognitive and affective capacities called empathy (Batson 2009): people recognize emotional experiences in others, experience matched sensations and emotions, and are motivated to alleviate the others' suffering, which frequently results in helping behaviors.

Empathy is a central pillar of modern human society: it serves simultaneously as "gas" for pro-social behavior (e.g., helping), and a "brake" on anti-social behavior (e.g., aggression). From a young age, typical people are affected by another's suffering: they "step into the other person's shoes," "feel their pain," and are motivated to help (Batson 2009). At other times, however, they feel (and do) nothing at all. This flexibility is another hallmark of human empathy. The lighter side of this ability is prominently displayed in professions that require frequent exposure to human suffering (doctors, nurses, social workers, and aid workers). Empathic regulation also allows us to make everyday decisions that require increasing others' (short-term) suffering for a greater good (e.g., preventing a child from playing with something that is dangerous to them, firing an ill-qualified employee, making a battlefield decision).

The darker side of empathic flexibility is often displayed in the context of intergroup relations. When an out-group is perceived as antagonistic, people respond less empathically to out-group members, but also more empathically to in-group members (Dovidio et al. 2010). It has been suggested that the motivation to help in-group members, and hostility toward people from other ethnic or racial groups, may have co-evolved in humans: group survival is more likely when many members are willing to fight in inter-group wars and even sacrifice themselves to protect others in their group (Choi and Bowles 2007). The most dramatic incidents of intergroup violence are consistent with these suggestions: most suicide bombers are not psychopaths, but rather may experience "parochial altruism," or high empathy selectively for their own group's suffering (Ginges et al. 2007). This suggests that the most useful metric of empathy for understanding political violence may be the gap between in-group empathy and out-group empathy, for which humans may have a particular susceptibility. We call this the "intergroup empathy bias."

As empathy is such a fundamental psychological force, and is so dramatically affected by group identity, it is important to understand the root causes and consequences of group-based empathy. One of the “cleaner” ways to study the intergroup empathy bias (outside of the complexities of historical violence, ethnic rivalry, and religious differences) is to examine the effect in minimal groups—groups in which the boundary is arbitrary (e.g., red team and blue team). Children randomly assigned to color teams show greater empathy for in-group members than for out-group members when those children are socially rejected (Masten et al. 2010). Recent work in our lab with adults has shown that intergroup empathy biases (how bad and how good participants report feeling in response to in-group and out-group fortunes and misfortunes) are determined less by self-reported trait empathy, and more by how strongly group members identify with their own group relative to the other group. That is, the most dramatic differences in intergroup empathy bias (which characterize many people who commit acts of extreme violence) are better predicted by tribalism than sociopathy.

The intergroup empathy bias is established rapidly and difficult to shake; however, two methods are successful at decreasing this bias. In one version of our study, we provided one group of participants with a graphical representation of the in-group and out-group that presented them as overlapping networks of individuals, and another group with graphical representations of the in-group and out-group that presented them as distinct networks of individuals. Everything else about the study was identical in both conditions. Although both representations were bogus (and meaningless), the intergroup empathy bias was significantly decreased when groups were represented as more integrated and overlapping. Therefore, the mere perception of intergroup similarity or overlap can mitigate the intergroup empathy bias.

In another version of the study, we examined how framing the information affected the intergroup empathy bias. In this version, one group of participants was presented with “headlines” of in-group and out-group members’ fortunes/misfortunes, and another group was presented with the headlines embedded in a short narrative about each protagonist. We found that including the narrative significantly decreased the intergroup empathy bias by drawing participants’ attention away from group membership and towards individual experiences.

Characterizing the boundary conditions of the narratives (i.e., what types of information or style of narratives generate the greatest effect), and determining how effective these mitigating factors are in the context of real intergroup conflict is currently being investigated. However, these initial results suggest that the framing of the groups and the information can dramatically alter the intergroup empathy bias.

#### *3.5.1.2 Reasoning*

The combination of enhanced in-group empathy and failed out-group empathy may provide a “hot,” emotional motivation for political violence. At the same time, a group of “cold,” and seemingly more rational, biases may also drive hostility.

Humans are “naïve realists,” believing that they have an objective view of reality (Ross and Ward 1994, 1996). This creates a problem when we encounter disagreement with another. Naive realism predicts that people first assume that the other person lacks the correct perspective on the issues—“If only they knew what I knew, they would agree with me.” However, when simple exchange of information fails to resolve the disagreement, people quickly switch to the interpretation that the other person or group is inherently biased and irrational. For example, in a disagreement among students over academic policy, each side is more likely to ascribe “valid” reasons over “biasing” reasons for their own position, but “biasing” reasons over “valid” reasons for the student they disagree with (Pronin et al. 2004). This effect has also been demonstrated at the group level: when asked about their views of the conflict in the Middle East, Jewish and Arab American respondents each report that their own identities provide insights on the issues, while the others’ identity confers bias (Ehrlinger et al. 2005).

The greater the divide in opinion is, the more people assume that another’s views are based on non-normative factors like bias and ideology. The perception of out-group bias is thus exacerbated by another psychological bias: partisans tend to over-estimate their disagreements with the other group. This “false polarization bias” acts at the group level, amplifying the perception of disagreement between groups beyond the actual levels of disagreement, specifically for one’s most strongly held views (Chambers et al. 2006; Robinson et al. 1995).

The perception of out-group bias can fuel political violence. Perceiving the other as biased makes people less willing to cooperate or negotiate with the other side, and more inclined towards aggressive or competitive actions, like sanctions or shows of force (Kennedy and Pronin 2008). This has been hypothesized to lead to a “perception of bias-conflict spiral.” The first side sees the group differences as amplified, and differences in opinion are perceived as wider than they are; these differences in opinion accentuate the perception of the second side’s views as biased and irrational; seeing the second side as biased leads the first side to choose conflict-escalating behaviors and reduce the tendency towards rational negotiation; these actions reinforce the second side’s perception of the first side as irrational and biased, thus continuing the cycle. Altogether, this spiral of psychological effects drives partisans towards more adversarial options such as political violence.

If empathy biases and naïve realism are a consequence of the human condition, and these psychological biases are present at the interpersonal as well as intergroup levels, is there any way to get past them? Although the vast majority of work on cognitive biases has been devoted to categorizing and describing them, the few studies that have attempted to ascertain how stable these biases are over time provide some tentative hope. For example, our own work (described below) has shown that, given the right intervention conditions, empathy biases and higher level cognitive biases can be altered between different cultural groups (Americans and Mexican immigrants), and even groups embroiled in intractable conflict (Israelis and Palestinians).

### **3.5.2 Conflict resolution interventions**

When two groups are in conflict, prejudice, discrimination, and open hostility can thrive. Each group’s perception of the other is characterized by failures of empathy and perceptions of bias. Conflict resolution and prejudice-reduction programs aim to turn this situation around by using several types of interventions: perspective-taking, role playing, simulation, and positive intergroup contact. The general hypothesis of these programs is that improving attitudes for specific out-group members can enhance attitudes towards the out-group as a whole, thus engendering a willingness to help and reluctance to harm out-group members.

Understanding the causes and contexts of interventions, and the short and long-term effects of interventions on both groups, is critical to better un-

derstanding the positive effects and unintended consequences of conflict resolution efforts. Unfortunately, well-controlled empirical studies of prejudice-reduction and conflict resolution programs remain rare, and relevant data are scarce (Paluck and Green 2009). There are a handful of documented successful interventions. For example, Chileans' empathy towards native Mapuche, and Bosnian Serbs' empathy towards Bosnian Muslims, was increased by perspective-taking (Čehajić et al. 2009). In an impressive large-scale field study, a radio drama in Rwanda depicting positive intergroup interactions increased empathy of Hutus towards Tutsis (Paluck 2009). A conflict resolution program in Sri Lanka demonstrated that the positive effects of interventions can be long-lasting: relative to control groups, Sinhalese participants in a 4-day intergroup workshop expressed enhanced empathy towards Tamils, even a year after participating in the program (Malhotra and Liyanage 2005). Another study conducted by our lab in the Middle East illustrated that positive effects from interventions can act very rapidly, improving attitudes of Israeli and Palestinian participants for each other even after a 20-minute interaction with an out-group member (Bruneau and Saxe 2012). Furthermore, increased empathy can lead to improved attitudes towards, and willingness to help the out-group (Batson et al. 1997; Hodson 2008; Pettigrew and Tropp 2008). For example, increasing empathy increased donations to an out-group charity (Malhotra and Liyanage 2005), and forgiveness for past atrocities (Cehajic et al. 2008).

However, perhaps more striking than the handful of successes is the dearth of successful interventions. In fact, while success is possible, interventions designed to improve intergroup attitudes are often ineffective, and empathy, positive attitudes, and helpful intentions toward an out-group can also *decrease* following perspective-taking. For example, metastereotypes—thoughts about how one (as a majority group member) may be evaluated by an out-group member—are activated when individuals empathize with an out-group member in the context of an intergroup interaction. These thoughts have the deleterious effect of interrupting other-focused empathic responses that are required for prejudice reduction. Moreover, among relatively high-prejudice participants, empathy-induction can elicit overtly *negative* reactions to a nearby out-group member (Vorauer and Sasaki 2009).

Intergroup interventions can also fail for one of the groups involved. A meta-analysis of conflict resolution programs based on the “Contact Hypoth-

esis” found that, although the programs generally improve attitudes of the majority group towards the minority group, they are ineffective for improving attitudes of minority group members towards the majority group (Tropp and Pettigrew 2005). Similarly, an intervention in the Middle East fashioned after Sesame Street was generally successful at improving attitudes of Israelis towards Palestinians, but not the other way around (Cole et al. 2003). This raises the possibility that interventions may interact with group membership to produce asymmetric effects. There is ample anecdotal evidence, and some longitudinal data (Hammack 2011), to suggest that attitudes of disempowered group members may even get worse over time, as they return from their intergroup encounter with trust and hope to find structural inequality intact. Generating temporary intergroup trust may therefore provide a short-term gain that sets up the potential for a negative rebound. Although the idea that asymmetric power may interact with interventions has received little attention, recent studies have supported this notion. For example, a more “assimilationist” orientation more effectively predicts positive interracial orientations among majority group members, while “integration” representations are more effective at predicting positive interracial orientations among minority group members (Dovidio et al. 2001; Van Oudenhoven et al. 1998; Verkuyten and Brug 2004).

Our own work shows an asymmetric effect of intervention type on attitudes of Israelis and Palestinians towards each other. In a study conducted simultaneously in Tel Aviv and Ramallah, Israelis and Palestinians were exposed to a member of the other group in a surprise, on-line interaction in which they either wrote about “one or two of the most difficult aspects of life in [their] country” (“perspective-giving”), or read what a member of the other group wrote about this topic, summarizing that view at the end (“perspective-taking”). We found that Israeli biases towards Palestinians significantly changed only in the perspective-taking condition, and Palestinian biases towards Israelis significantly changed only in the perspective-giving condition (Bruneau and Saxe 2012). This pattern was replicated in Arizona when the same study was conducted with Mexican immigrants and white Arizonans, suggesting that the effectiveness of the interaction depends upon group power. Two pieces of evidence suggest that the benefits for Palestinians in the perspective-giving condition were not due only to speaking, but hinged critically on feeling “heard”: first, the amount of positive change was correlated with how well they felt their Israeli partner summarized what they had said (and was independent of how sympathetic they felt their interaction partner was), and second, there was no change in

intergroup bias following a control condition where Palestinians wrote about the same topic, but had no interaction partner.

### **3.5.3 Potential applications of social science**

One of the challenges faced by the U.S. is how to decrease anti-American sentiment and prevent violent attacks on U.S. citizens. Here we have highlighted a couple of psychological forces, both “hot” and “cold,” that could drive an individual towards violence: an intergroup empathy gap (simultaneously providing the “gas” to protect your group, and relieving the “brake” to aggress against the “other”) and a perception of out-group irrationality based on naïve realism. We have also examined a number of conflict resolution efforts, both by social scientists and private organizations, that have tried to address intergroup biases. The successes and failures of experimental manipulations and conflict resolution efforts provide useful lessons for people hoping to improve attitudes of others towards the U.S.

#### *3.5.3.1 Framing can mitigate intergroup biases*

Increasing the perception of group similarity can lessen both “hot” and “cold” intergroup biases. This frame can even be established by essentially meaningless graphical representations. Framing information about group members in short narratives also decreases the intergroup empathy bias; the effect of narrative framing on “cold” cognitive biases has not yet been examined.

#### *3.5.3.2 It is dangerous to rely on one’s own (or one’s group’s) intuitions regarding possible interventions for another group*

The past research on conflict resolution programs reviewed here suggests that these efforts are often unproductive or even counter-productive, particularly for the disempowered group members. Formal conflict resolution programs are generally started by extremely well meaning members of the empowered group; social scientists are predominantly white males. It is possible that the intuitions brought by these people selectively serve the psychological needs only of the empowered group, often with the unintended consequence of driving the disempowered group even further away.



### *3.5.3.3 When engaging across group boundaries, it matters who speaks (and whether they perceive that they were heard)*

A recent audit of dialogue programs in Israel found that the less Palestinians spoke (relative to Israelis), the less effective the program was for the Palestinian participants (Hammack 2011). Our work suggests that this effect is causal: members of the relatively disempowered groups benefit most when they are given the opportunity to speak (and feel heard). People who perceive the U.S. as their “enemy out-group” may therefore benefit from being given a forum to speak, as long as the listener is able to make them feel understood (but not necessarily agreed with). This also suggests that members of the most disempowered group should be given the floor first during negotiations.

### **3.5.4 Summary**

The psychological edifice erected between group members, often without their conscious awareness, combines with socio-political barriers to drive members of conflict groups towards aggressive intergroup behaviors and away from intergroup reconciliation. Crucially, group membership interacts with these psychological forces, potentially rendering uniform interventions less effective for one of the groups; in some conditions, well meaning interventions aimed at decreasing intergroup hostilities can even have an ironic effect.

### **3.5.5 Acknowledgments**

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### **3.6 Neurobiology of sacred values and implications for radicalization process**

*Dr. Greg Berns*

#### **3.6.1 Introduction**

Beliefs are components of the brain's model of the world within which it resides. Beliefs help interpret states of the world, formulate predictions of events of the world, and influence courses of action to take or not take in response to those interpretations and predictions. Consequently, knowing the beliefs held by others can inform estimates, and explanations, of actions (or reactions) based on those beliefs (Fishbein and Ajzen 2010). However, as beliefs vary widely across contexts and content, all beliefs are

not the same in their impact on political–cultural violence. Research in the study of political extremism and terrorism have suggested that there is a specific “category” of belief that stands apart in its resistance to influence and its role in anchoring a moral stance in choices involving acts of violence—sacred values (Atran and Ginges 2012; Ginges et al. 2011).

Sacred values (sometimes called protected values) are beliefs asserting values that are resistant to trade-offs with other values and materialistic–economic goods (Baron and Spranca 1997). What explains choice behaviors involving sacred values? Two types of explanations dominate the literature: utilitarian reasoning or deontic processing.

#### *3.6.1.1 Utilitarian reasoning*

This involves rational choice wherein the expected valuation of alternatives be considered (von Neumann and Morgenstern 1944). However, sacred values suggest infinite valuation (i.e., no compensatory choice) and thus generate substantial problems under expected utility theory (Baron and Spranca 1997). Furthermore, evidence suggests that rational-choice theories fail to explain extreme events, such as suicide terrorism (Atran 2003). Resolution to such utilitarian difficulties include suggestions that trade-offs do occur indirectly under reframing (McGraw and Tetlock 2005) or that the values asserted are not that “sacred” (Baron and Leshner 2000). Regardless, utilitarian explanations of how sacred values are processed all embody a similar assumption—cost–benefit valuations of some form are assigned to alternative consequences and compared in the process of choice. Therefore, the influence of choice is predicated on the ability to influence the relative value of the outcomes.

#### *3.6.1.2 Deontic reasoning*

Deontic reasoning, on the other hand, involves the dominance of normative rule over valuation. That is, reasoning that does not engage in cost–benefit deliberation, but involves acts in adherence to beliefs that describe behaviors or conditions in terms of “rights and wrongs,” regardless of the consequences and without qualification (Kant 1785/2005). Such reasoning is often expressed as a core element of religious or cultural belief networks, serving critical adaptive functions for group survival (Atran and Ginges 2012). At the extreme, such beliefs and rules may situationally ascend to a communal “sacred” status and may dominate individual incentive choice (Ginges and Atran 2009; Hoffman and McCormick 2004).

Therefore, the influence of choice in the deontic framework is predicated on the ability to influence the engagement of the appropriate rule.

Understanding the foundational mechanisms of sacred values is essential for deeper understanding of what constitutes *true* morally motivated decision making (Atran and Medin 2008). For example, sacred values cast in a religious form play a central role in facilitating “both large-scale cooperation and enduring group conflict” (Atran and Ginges 2012, p. 856).

In this paper, we report on a unique stream of research designed to help resolve the utilitarian–deontological issue and provide an explanatory mechanism for differentiating between the two in terms of how they are represented and processed. We investigate the neural representation and processing of sacred values through a coordinated mix of survey responses, functional magnetic resonance imaging (fMRI), and an auction task. As we shall see, when our participants were simply *presented* with statements reflecting values, their brain responses signaled and predicted the sacredness of those values as revealed behaviorally through a subsequent auction. Specifically, values that were deemed “sacred” generated brain responses typically associated with rights-and-wrongs and semantic rule retrieval, and not regions associated with utility calculations. That is, *sacred values are naturally processed as rules and do not undergo cost–benefit deliberation*.

We conclude by discussing the implications for understanding the biological underpinnings of political violence and terrorism.

### 3.6.2 Study summary

Thirty-two adult participants took part in the study. The study was composed of four distinct phases. The first three phases were performed in the scanner, while the fourth phase was done out of the scanner.

In the first phase, called the *passive* phase, the participant was presented with series of value statements written in the second person, ranging from those that are likely to elicit strong and differentiating responses, to those of a more mundane nature. There was no decision required; rather, the purpose was to capture the immediate neurological responses to this set of value statements. Examples of the former statement types are the following: “You believe in God,” “You believe that interracial relationships are wrong,” “North Korea should be nuked,” “You are a Republican,” “You be-

lieve that homosexuality is a choice,” “Israel should have complete control of the West Bank and Gaza,” “It is okay to use nuclear weapons on civilians,” and “You support the use of torture to gain intelligence.” Examples of the latter statement types are the following: “You are a coffee drinker,” “You are a Pepsi drinker,” “You are a Mac person,” “You are a dog person,” “You give money to the poor,” and “You enjoy all colors of M&Ms.” Additionally, every statement (there were 62 in total) also had a complementary form. For example, “You do not believe in God,” “You do not believe that interracial relationships are wrong,” and “You are a Republican.” Thus, a total of 124 statements were presented to each participant during the passive phase.

The next phase was the *active* phase, where the same set of statements were again presented, but two at a time in their complementary pairs (e.g., “You believe in God” with “You do not believe in God”). Participants then had to choose which one of the pair (forced choice) best reflected his or her values.

The third phase was the *hypothetical* phase that was based on the choices made in the previous (*active*) phase. For each one of the chosen value statements (e.g., “You believe in God”), the participant was asked a general question inquiring whether there is some (unspecified) dollar amount that he or she would accept to choose a variation of the complementary form of the statement (e.g., “Vow to not believe in God for the rest of your life”). This was also a forced choice (Yes, No) response format.

Finally, in the fourth, *auction* phase (out of the scanner), participants were given the opportunity to change their chosen value statements from the *active* phase to their complementary opposite for money. As each chosen statement was presented, the participant could either “opt-out” and refuse to change their chosen value statement, or the participant could enter an “ask” (reservation) price amount between \$1 and \$100 to auction the statement, where the actual winnings were determined after all ask prices were obtained.<sup>1</sup> This is the phase that specifies the critical behavioral component of the study and the operational definition of sacredness: if the participant elected to opt-out of the auction, that item was classified as

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<sup>1</sup>The auction was based on the Becker-DeGroot-Marshak (BDM) auction mechanism, which is incentive-compatible in elicitation of reservation prices; that is, the BDM mechanism provides no incentives for either understating or overstating an individual's true willingness-to-accept (Becker et al. 1964).

“sacred,” but if the participant elected to enter the auction, that item was classified as “non-sacred.”

The classification of the items (sacred, non-sacred) was then compared to the brain activity in response to viewing those items in the prior *passive* phase. As the *auction* phase defined for each participant which value statements were considered sacred or non-sacred, would we find any differences in brain activity in the participants when they originally viewed those items?

From that analysis, the following findings emerged. First, when participants viewed their sacred value statements, greater activation occurred in the neural systems associated with semantic rule retrieval (left ventrolateral prefrontal cortex) and in those associated with right/wrong moral violation responses (left temporoparietal junction), than in those systems associated with assessments of cost–benefits. Thus, this specific pattern of co-activation suggests that sacred values are engaged as rules related to rights-and-wrongs and do not undergo utilitarian considerations.

Second, when participants viewed their non-sacred value statements, greater activation occurred in the regions associated with utility-based reasoning (e.g., left and right inferior parietal lobules), than those associated with either semantic rule retrieval or right/wrong moral violations. For non-sacred values, monetary inducements engage specifically identified utilitarian considerations—costs and benefits are assessed.

Third, when participants viewed the subset of value statements that were likely the most objectionable—those that they did not select (during the *active* phase) and did not consider accepting money for (during the *auction* phase)—activity significantly increased in the right amygdala, indicating heightened (perhaps unconscious) arousal associated with unpleasant or negative stimuli. This finding is consistent with the observation that violations of sacred values can induce outrage (Ginges and Atran 2009).

Finally, an interesting positive association was found between the level of a participant’s involvement in formal group activities (as captured by a pre-study self-report questionnaire) and the difference in level of activation of in the left ventrolateral prefrontal cortex (VLPFC) obtained in the *passive* phase between sacred items and the non-sacred items. That is, as

the difference in activation levels between sacred and non-sacred items increased in the VLPFC, there was an associated increase in the level of participation in group activities (i.e., not simply group membership). As previously noted, activation in the VLPFC is associated with semantic rule retrieval. Although speculative, we interpret the increasing activation levels of the VLPFC as an indicator of “increasingly stronger” or “increasingly richer” sacred value representations that are associated with increasingly active participation in groups supportive of those values. As participation in groups continues, the communal support and justification of the sacred values addressed or instantiated by the activities strengthen the “sacredness” of the value (possibly through discussion or engagement of the communal action). Consequently, a self-reinforcing organization–biological mechanism loop is institutionalized.

### **3.6.3 The implications and extensions**

The sacred values research paradigm described here is well suited to incorporate findings and integrate methods drawn from the experimental approach to understanding the justification for terrorism and other forms of political mobilization such as protest (Asal et al. 2012; Lemieux and Asal 2010; Lemieux et al. 2011). Specifically, the aforementioned ongoing work in this domain has examined the impact of various types and levels of perceived grievance and risk, along with social–personality factors, including social dominance orientation, which is a general measure of preference for group based hierarchy and dominance versus egalitarian relationships (Pratto et al. 1994; Sidanius and Pratto 1999), right-wing authoritarianism (Altemeyer 1988, 1996)<sup>1</sup>, and religious fundamentalism (Altemeyer and Hunsberger 2004; Delamontagne 2010). Consequently, we might expect that to the extent that grievances can be construed as violations of sacred values, concerns about the costs and benefits of various forms of action may play a less central role in determining the kinds of actions that would be most justified in response to a given situation, which has been documented in the field (Atran et al. 2007; Ginges et al. 2011). In essence, this research has found empirical support for the role of grievance and perceived risk in leading to increased levels of justification for terrorism, suggesting that a more refined view of these factors is especially warranted.

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<sup>1</sup> See Cohrs et al. (2005) for a discussion of the relationships between social dominance orientation and right-wing authoritarianism.



One intriguing possibility that the integration and extension of these areas of research presents on both a practical and conceptual level is the ability to critically examine patterns of neurobiological activation of some of the aforementioned regions of interest, as they relate to factors that have been both posited and shown to increase levels of support for, and mobilization for, politically motivated actions, including terrorism. The intersection of these methodological and conceptual approaches allows us to critically examine whether hypothesized regions of interest in the brain are activated under varying experimental scenarios that systematically test the impact of different forms of grievance, including humiliation and discrimination, political exclusion, and disenfranchisement, as well as moral outrage (McCauley and Moskalenko 2011).

By extension, these findings have the distinct potential to inform policy by empirically demonstrating the relationship between key grievances, and how those are processed as various courses of action and their attendant levels of justification are considered. An understudied aspect political violence and terrorism are the conditions under which violent acts of *others* are seen as justified and endorsed. Thus, findings in this emerging program of research will aid in informing policies, communications, and predictions that are part of the broader context of countering terrorism, by helping to optimize the kind of counter-messages that can mitigate against factors that have the potential to motivate terrorism, through a deeper understanding of the biology of cultural conflict (Berns and Atran 2012).

We conclude with the words of Scott Atran (2008) in his testimony before the House Appropriations Subcommittee on Homeland Security; these words reflect the salience and potential value of the this stream of research:

Models of individual and group based choices have tended to assume that theories of bounded rationality can explain choices to commit oneself or one's group to acts of political violence and terrorism. However, based on our research among Palestinian members of Hamas, members of radical madrassah's in Indonesia, and radical Israeli settlers, we find that decisions to commit oneself or one's community to political violence are driven by moral intuitions rather than cost-benefit calculations of realpolitik, the market-

place or “business-like” negotiations. The implication is that in order to understand, model, and predict terrorism and political violence we need to apply our emerging understanding of moral decision-making to a broader cross-cultural field investigation of the cognitive and emotional processes involved in decisions to engage in acts of political violence and terrorism.

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## 3.7 Culture and radicalization

*Dr. Joan Chiao*

### 3.7.1 Introduction

Since antiquity, human history has been defined by cooperation and conflict amongst people within and across social groups. Decades of social psychological research indicates that people form social groups to facilitate small- and large-scale cooperation (Allport 1979). Social group membership may arise from both arbitrary (e.g., minimal group), symbolic (e.g., insignias, language), and visual (e.g., age, race, gender) group markers that signify identity and belonging in groups for individuals across geographic regions (Tajfel and Turner 1979). Decades of evolutionary biological research indicates that social belonging and group membership is an adaptive kind of social organization not only for people, but also for species across the evolutionary landscape, from non-human primates, to insects such as bees and ants (Wilson 2000).

Two primary dimensions of social organization that appear universal across species and cultures are social hierarchy and social affiliation (Fiske 1992). Social hierarchy within and across social groups provides an important organizing principle whereby social decision-making and complex behaviors, such as cooperation and conflict resolution, occur within (Fiske 1992) and between groups (Pratto et al. 1994; Sidanius and Pratto 1999). Social affiliation within and across social groups enables individuals to acquire multiple identities that allow for belonging and facilitate intergroup coordination within and across groups. Two additional core dimensions of human social organization include equality matching and market pricing (Fiske 1992). Equality matching refers to the sensitivity people have to balancing inequities within and across groups (Fiske 1992). Market pricing refers to the rate or ratio of value that is conferred to objects or labor of others (Fiske 1992). These complex social processes are thought to arise as a cultural combinatorial construction of primary social dimensions, such as affiliation (e.g., communal sharing) and hierarchy (e.g., authority ranking). The comparative exchange of commodities and labor amongst individuals within and between organizations, groups, and cultures reflects the cooperative and competitive instincts of individuals exhibited during social interactions.

### **3.7.2 Cultural neuroscience: An integrative model of human behavior**

The ubiquity of intergroup social relations remains a looming puzzle for social and natural scientists alike owing to the questions regarding the cultural and biological processes that facilitate intergroup relations, such as empathy, altruism, cooperation, and trust. The emerging field of cultural neuroscience provides a novel approach to understanding how cultural and biological factors give rise to mind, brain, and behavior (Chiao and Ambady 2007; Chiao et al. 2010; Chiao 2011). Bridging cultural and biological sciences, cultural neuroscientists study what kinds of cultural values, practices, and beliefs shape neurobiological processes and behavior and how biological processes, such as genetic and neural mechanisms, create and maintain culture within and across multiple timescales. Across the evolutionary timescale, environmental pressures, such as pathogen prevalence, produce cultural niches that emphasize distinct sets of repertoires of values, practices, and beliefs (Fincher et al. 2008; Fincher and Thornhill 2012). Within the evolutionary timescale, selection of cultural sets of values, practices, and beliefs will occur in tandem with selection of genetic mechanisms that facilitate the creation and maintenance of adaptive human behaviors within culturally constructed ecological niches. Researchers in cultural neuroscience study not only how culture influences neurobiological processes, but also how cultural and neurobiological processes are shaped by evolution (Chiao 2011).

Culture-gene coevolutionary theory provides a novel window into understanding how both cultural and genetic selection shape mind, brain, and behavior (Boyd and Richardson 1985). A predominant example of culture-gene coevolution of lactose tolerance can be found in Northern Europe. Northern European regions where there exists an increased frequency of cattle with lactose-producing genes also show an increased frequency of humans with lactose-tolerance, indicating a coevolution between cattle and humans in a specific geographic region (Beja-Piera et al. 2002).

A novel example of culture-gene coevolutionary theory of human behavior is between cultural values of individualism–collectivism and the serotonin transporter gene (5-HTTLPR) (Chiao and Blizinsky 2010). Cultural values of individualism–collectivism are a primary cultural dimension that describes distinct kinds of social affiliation. Individualistic cultures emphasize individuals as distinct and autonomous from others, whereas collectivistic cultures emphasize individuals as defined by social affiliation or harmony with close others (Markus and Kitayama 1991; Triandis and

Gelfand 1998). Evolutionary psychologists have recently shown that cultural values of individualism–collectivism are associated with historical and contemporary pathogen prevalence (Fincher et al. 2008; Fincher and Thornhill 2012). Geographic regions with increased individualism typically have reduced historical and contemporary pathogen prevalence, whereas geographic regions with increased collectivism typically have increased historical and contemporary pathogen prevalence. Higher collectivism may provide an adaptive function, such as an *anti-pathogen defense* (Fincher et al. 2008). Collectivistic norms and behaviors, including increased vigilance to social norms and group harmony or affiliation, may protect group members from potential risk of pathogens (Fincher et al. 2008).

Recently, we have shown in a cross-national study that historical pathogen prevalence leads to increased collectivism because, to some extent, of genetic selection of the serotonin transporter gene (5-HTTLR) (Chiao and Blizinsky, 2010). Geographic regions with increased cultural collectivism also have increased prevalence of short (S) compared to long (L) allele carriers of the serotonin transporter gene (5-HTTLPR). Increased cultural collectivism within geographic regions with increased historical pathogen prevalence shows at least two distinct adaptive functions. In addition to serving as an *anti-pathogen defense*, increased cultural collectivism may also serve as an *anti-psychopathology defense*, buffering individuals from maladaptive behaviors, such as anxiety and mood disorders. In a cross-national study, we have also shown nations with increased collectivism show reduced prevalence of negative affect, such as anxiety and mood disorders, despite an increased prevalence of individuals thought to be genetically susceptible to negative affect. In Western nations, individuals who carry the S compared to L allele are thought to be at risk for negative affect, such as neuroticism and in face of life stress, mood disorders; however, gene-by-environment models of negative affect, such as anxiety and mood disorders, remain controversial, due in part to non-replications of these findings within Eastern nations. Taken together, our findings indicate that culture plays an adaptive role in facilitating psychological and physical well-being, particularly in geographic regions with historical environmental pressures (e.g., pathogen prevalence) (Chiao and Blizinsky 2010).

Individualistic and collectivistic cultures may not only be defined by social affiliation, but also be defined by aspects of social hierarchy, such that

both individualistic and collectivistic cultures may emphasize some features of equality (e.g., horizontal dimension) or hierarchy (e.g., vertical dimension) (Singelis et al. 1995; Triandis and Gelfand 1998). Horizontal and vertical individualism–collectivism then may form four primary typologies of cultural dimensions. Horizontal individualism entails complex social processes such as market pricing and equality matching, kinds of social interactions found in Democratic socialistic nations, such as Norway; by contrast, horizontal collectivism includes processes such as communal sharing and equality matching, interactive processes that characterize group living in kibbutz in nations, such as Israel (Triandis and Gelfand 1998). Vertical collectivism comprises processes, such as communal sharing and authority ranking, and primary social relations that characterize nations, such as China; by contrast, vertical individualism involves social processes, such as market pricing and authority ranking, that describes market democracies, such as France (Triandis and Gelfand 1998). Decades of cross-cultural psychological research have shown that most geographic regions around the world can be described, at least to some extent, along vertical and horizontal individualism and collectivism.

Importantly, cultural dimensions of social affiliation and social hierarchy are not necessarily intransient characteristics of nations or individuals. For instance, just as foundational organizational psychological research showed that nations and organizations are definable according to vertical and horizontal individualism–collectivism, novel and surprising evidence from cultural psychology has shown that individuals may show malleability to such cultural dimensions (Hong et al. 2000; Oyserman and Lee 2008). Cultural priming, or temporarily heightening awareness of individualism or collectivism with a given situation, can alter how people define themselves (e.g., social identity) as well as how they interact with others (e.g., social cooperation). For instance, people primed with collectivistic compared to individualistic values have been shown to define themselves in relational rather than trait terms, whereas people primed with individualistic compared to collectivistic values cooperate with people, irrespective of group membership (Gardner et al. 1999).

Until recently, less well understood is how cultural dimensions of social affiliation (e.g., individualism–collectivism) and social hierarchy (e.g., verticalism–horizontalism) shape neurobiological processes that produce complex human behaviors within social contexts. Recent progress in cultural neuroscience provides novel insights into how people form and

maintain cultural identities as well as empathize and respond to the distress cues of others.

### **3.7.3 Social identity and the self**

Cultural neuroscience studies of social identity and the self show that cultural values of individualism–collectivism modulate neural representations of the self. One recent neuroimaging study showed that native Chinese compared to Westerners living in China show greater neural responses within the medial prefrontal cortex (MPFC) to close others, but not famous others, compared to the self, demonstrating the influence of ethnicity on neural representations of the self (Zhu et al. 2007). Notably, cultural values, independent of ethnicity, may affect neural representations of the self. For instance, native Japanese and Caucasian-Americans show increased neural response within medial prefrontal cortex when thinking about themselves in a culturally congruent manner, irrespective of geographic region (Chiao et al. 2009). Individualists living in both Japan and U.S. show greater medial prefrontal response to trait-like self-descriptions, whereas collectivists show greater neural response to contextual self-descriptions. Monocultural Caucasian-Americans similarly show greater neural response within cortical midline regions, such as the medial prefrontal cortex and posterior cingulate cortex (PCC), as a function of collectivism (e.g., interdependence) (Ray et al. 2010). Hence, cultural values of individualism–collectivism modulate neural response within cortical midline regions that store internal representations of the self.

Notably, the effect of culture on neural representations of the self appears malleable across situations. Bicultural Asian-Americans when primed with individualism show increased neural response within cortical midline regions, within medial prefrontal and posterior cingulate cortex, to trait-like self descriptions, whereas those primed with collectivism show increased neural response to contextual self-descriptions during explicit evaluation of the self (Chiao et al. 2010). During implicit evaluation of the self, cultural priming of bicultural Asian-Americans modulates dorsal, but not ventral, portions of the medial prefrontal cortex, likely reflecting the influence of culture on evaluation, rather than detection, of representation of the self (Harada et al. 2010).

Race and ethnicity play an important role in the formation and maintenance of social identity. Decades of social psychological research has shown that minorities, such as African-Americans and Hispanic-



Americans living in the U.S., show greater ethnic or racial identity compared to majority members, such as Caucasian-Americans. In our recent cultural neuroscience studies of social identity, we have found that African-Americans compared to Caucasian-Americans show greater neural response within cortical midline regions during empathic processing of in-group compared to out-group members due to increased ethnic or racial identification (Mathur et al. 2011). Furthermore, degree of racial identification predicts degree of neural response within these cortical midline regions to group members, indicating the important influence of social identity on neural response to social information in historically disenfranchised minority groups (Mathur et al. 2011). Future research may examine the processes that lead to the formation and malleability of social identity, such as cultural, racial, or ethnic identification, on social responding at neural and behavioral levels of analysis.

#### **3.7.4 Empathy and altruism**

Complex social interactions often require people to understand the thoughts, feelings, and intentions of others, to share or understand each others' perspectives, and to respond when perceiving distress or need for help in others. Empathy is a fundamental process that enables people to understand and share the feelings (e.g., empathic resonance) and thoughts (e.g., perspective-taking) of others (Preston and DeWaal 2002). The social ability to understand and share the feelings and thoughts of others relies on distinct neural circuitry that gives rise to affective and cognitive abilities. Neural regions, such as the bilateral anterior insula (AI) and anterior cingulate cortex (ACC), and somatosensory cortices (SII), are associated with the ability to perceive and respond to distress cues in others, such as pain or suffering (Berhardt and Singer, in press). Notably, a majority of neuroscience studies of empathy and altruism have been conducted predominantly within Western industrialized regions, indicating a potential gap in our understanding of how cultural and biological factors shape empathy and altruism (Chiao 2011).

Recent evidence from cultural neuroscience studies of empathy and altruism reveal novel influences of culture, race, and ethnicity on neurobiological mechanisms of empathy and altruism. Race and ethnicity modulate neural responses to people's distress cues. Native Chinese and Westerners living in China show greater neural response within the anterior cingulate cortex (ACC) to physical pain cues of their own group members (Xu et al. 2009). Similarly, Africans and Western Europeans living in Italy show

greater corticospinal response to the physical pain cues of group members (Avenanti et al. 2010). Notably, this enhanced neural response to the distress cues of group members is related to an implicitly acquired cultural bias, such that people who show reduced implicitly acquired cultural bias also show attenuated neural response to group members, indicating an important role for culture in understanding how group membership affects neural responding during empathy (Avenanti et al. 2010). Finally, when viewing scenes of victims in natural disasters, African-Americans show greater empathic responding and altruistic motivation to their own group members, processes associated with greater neural response within the medial prefrontal region to one's own group members, likely attributable to increased ethnic or racial identification with the suffering of own group members. In the same study, Caucasian-Americans show empathic responding and altruistic motivation to help victims of natural disasters that was independent of group membership (Mathur et al. 2010).

Cultural dimensions such as social hierarchy shape neural responses during distress and suffering. In an earlier study, we found that when viewing scenes of victims in natural disasters, Caucasian-Americans who show greater preference for social hierarchy have reduced neural response within brain regions associated with empathy, such as the left anterior insula (L AI) and anterior cingulate cortex (ACC) (Chiao et al. 2009). In our recent cultural neuroscience study with native Koreans and Caucasian-Americans, we show that, when viewing scenes of victims in natural disasters, native Koreans have greater neural and behavioral empathy towards group members, compared to Caucasian-Americans (Cheon et al. 2011). Furthermore, greater cultural preferences for social hierarchy in native Koreans, compared to Caucasian-Americans, were correlated with greater neural within left temporo-parietal junction (L-TPJ), a brain region previously associated with understanding the thoughts and intentions of others, and empathic behavioral response (Cheon et al. 2011). Finally, we show that cultural preference for social hierarchy predicts greater in-group empathy attributable to heightened neural response within left temporo-parietal junction (L-TPJ), indicating a mediating role of neural processes in the pathway from macro-level influences, such as culture, to complex human behavior, such as parochial empathy. Cultures that emphasize hierarchy and equality to differing extents may cultivate niches that similarly emphasize distinct routes to understanding others (Cheon et al. 2011). For cultures that emphasize hierarchy, people may rely more on a conceptual understanding of others, internalizing social roles and display rules, with

the assumption that such concepts are reliably predictable of internal workings of others' minds. For cultures that emphasize equality, people may rely more on a perceptual understanding of others, attending to external cues of distress and suffering, such as facial expression of pain or fear, with the assumption that percepts are reliable predictors of others' minds. While our ability to understand the thoughts, feelings and intentions of others may be universal, the way that people understand others, and the kinds of social cues and social rules that people rely on to make inferences about their thoughts, feelings, and intentions, may vary systematically according to cultural dimensions of social hierarchy within and across social groups.

### 3.7.5 Conclusion

Research on the cultural neuroscience of intergroup relations shows how cultural dimensions of social affiliation (e.g., individualism–collectivism) and social hierarchy (e.g., verticalism–horizontalism) shape neurobiological mechanisms and human behavior. While intergroup relations often reflect the unity and division in social fabric, particularly when people's social identities—their cultural, ethnicity or race—are challenged or questioned during intergroup interaction, research indicates that people show resilience in how their social identities are created, maintained, and shaped by social context, within and across generations. Societal resilience likely reflects the historical and contemporary imprint of cultural and evolutionary processes on shaping the human mind, brain and behavior within and across group boundaries.

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### **3.8 Neurobiological influences on radicalization: Ventures, values and violence**

*Dr. Pete Hatemi, Dr. Rose McDermott*

#### **3.8.1 Introduction**

DNA has become the meta-narrative of our time. From genetic investigation of NFL athletes suffering degenerative brain injuries following repeated head trauma (AP 2011) to Lady Gaga’s *Born this Way* campaign and institute at Harvard designed to increase tolerance and reduce bullying among adolescents, a new wave of interest, if not understanding, has captivated the public. In many cases, popular understanding oversells the role of genetics in determining behavior. No academically trained geneticist, neurobiologist, or any other scientist would ever suggest that there is “a gene” for liberalism or conservatism or any other complex political trait; such phenomena are likely informed by a number of processes that exist in intrinsic interaction with critical environmental variables. Yet, such a simplified approach to genetics has appeared recently in the press, and even infiltrated the legal arena, where an Italian appeals court reduced the sentence of a man convicted of a violent crime because he was found to have a genetic polymorphism previously associated with increased risk of violence (Feresin 2009). Clearly, the legal precedent and regulatory processes

appear woefully behind the curve relative to the rapid pace of technical and scientific progress in genetic research.

Yet for all the public and professional interest in the ways human behavior is influenced by genetic propensity, the complex role of the relationship among genes, environment, and culture has not similarly informed security policy, or explicated the psychological foundations for radicalization and fundamentalism. A generalized stigma exists for those whose understanding of genetics and biology is limited to the racist and sexist applications that plagued eugenics movements of the early 19<sup>th</sup> century. These applications vastly differ from modern day, legitimate genetic approaches to understanding behavior. Today, there are clear institutional constraints on the misuse of personal data and ethics in research tied directly to the ability to secure research funds and publish in scholarly journals. Indeed, all academics who conduct primary research are required to receive ethics approval, and take some form of ethics in research training. The vast majority of scholars is exquisitely aware of past abuses and remain vigilant in their determination to prevent the misuse of genetic information. Furthermore, it is the academic and research scholars who provide the most important balance and transparency against industry and private interests who work on similar issues, often without such constraints (e.g., Hatemi and McDermott 2011).

Overcoming the lack of knowledge of how genetics can inform security policy is important because the investigation of genetic influence offers the prospect for uncovering factors that increase our ability to predict the susceptibility of individuals to all kinds of risk and suffering, both medical and social. Many of these risks, such as depression or grief, can be manipulated by terrorists to recruit; yet they may also be partially ameliorated through targeted environmental interventions, once identified. Indeed, specific intervention may reduce the social, cultural, and genetic factors that can instigate such things as violent behavior or fundamentalist affiliations among those at greatest genetic risk for such behavior.

Over the last several decades, scholars have made enormous progress in trying to unpack the role of genetic influences in complex social and political behaviors (for a review see Hatemi et al. 2011). However, research in this area is only at the beginning, and much is unknown about the myriad ways in which brains and bodies interact with their environment to lead to

behaviors, such as radicalization and violence, which we are interested in understanding, predicting, and possibly even ameliorating.

This is important because political attitudes matter in a way that is utterly unique: they entrain the values and beliefs that individuals use, not only to govern their own behavior, but also, critically, the very controls and constraints they wish to impose on *other people's* behavior as well. The same might be said of moral and religious beliefs; however, it is through politics that such beliefs are enforced upon others in the population. The laws of society are political. Religious affiliation, on the other hand, unlike attitudes and beliefs, finds its sources almost entirely in processes of socialization; political ideology is more a function of personal proclivities, formed through experience interacting with one's genetic disposition.

Moreover political values do not simply reflect individual variance in a way that affects only a limited number of people, as might occur in the case of a particular disease, no matter how devastating. Rather, political values, through aggregation, and through their embodied instantiation in political institutions and organizations, literally formulate the basis for all civil and social society. In this way, individuals seek to impose on others the construction of society that they themselves find most comfortable, not only for their own behavior, but that of others as well. The problem emerges, inevitably, because individuals clash in their construction of the kind of society they find most amenable to their own particular disposition. And because we know that some of this variance is indeed genetically influenced (Martin et al 1986; Hatemi et al. 2012), some of these preferences and dispositions cannot be easily changed. People will differ, and they differ more within *populations* than between populations; indeed less than 1% of human DNA differs across populations. Of this, some 85% of the variance exists within populations. In addition, cultural, political, and institutional structures that remain unique to each society may also be subject to some degree of gene–environment coevolution; these combinations serve to provide specific fits for particular combinations of cultural influences and inherent dispositions and preferences. Just as Republicans and Democrats in the U.S. have an extremely hard time agreeing on issues like women's reproductive rights and immigration, individuals in different parts of the world similarly differ over whether they find democratic or authoritarian regimes more commensurate with their basic values and predispositions.

We are part of a small group of scholars systematically exploring the role of genetics in social and political attitudes and behavior, encompassing work on ideology and fundamentalism, as well as such complex phenomena as violence and aggression (e.g., Hatemi and McDermott 2011). In this paper, we discuss this work, outline some of our findings, and describe future goals. We begin with a discussion of the role of genetics in attitudes, exploring why the contributions of genetics to politics remain crucial. Next, we explain how both genes and environment interconnect in contributing to political ideology and in driving and shaping the behaviors we seek to understand. We then discuss what this means for explaining differences across populations. We conclude with some implications of this work for the study of political violence and extremism.

### **3.8.2 What is the role of genetics in attitudes and why should it matter?**

Political scientists have studied the origin, structure, and function of social and political attitudes for over 50 years. The first hugely influential book on the topic, *The American Voter* (Campbell et al. 1960), noted that the public did not seem to possess coherent ideological positions in the way that elite decision makers seemed able to formulate. That is, the public did not themselves discern which attitudes align with which other attitudes, or what was “liberal” or what was “conservative”; rather, only elites held such sophisticated views. Most importantly, this work by Philip Converse and others suggested that the political party one affiliates with was a process entirely controlled by socialization; children were assumed to learn their political orientations at the knees of their parents, precisely because of their affiliative connections to their parents. So, if your father was a Republican, you would become one as well. This formative work has heavily influenced generations of political science scholars, who until recently, did not have the knowledge to consider genetic influences, or the technical ability to properly analyze the central assumption inherent in socialization models, namely, that ideological formation is wholly dependent on processes of social learning.

However, work in the field of behavior genetics in the 1970s began to challenge the assumption that values are simply learned, and thus easily malleable. Indeed, the aforementioned political socialization studies provided little answer as to why people held on to their attitudes as part of their identity, if indeed such attitudes appeared so malleable. Lindon Eaves, Hans Eysenck, and Nicholas Martin demonstrated that a very large part of the variance in political ideology within a population derived from genetic



differences (Martin et al. 1986). This was accomplished by comparing the correlations between pairs of identical (monozygotic) and fraternal (dizygotic) twins. Monozygotic twins share the same genotype, while dizygotic twins are no more or less similar than any other sibling pairing, who shares on average 50% of their DNA. Because all twins reared together share the same family environment and social upbringing, differences in behavior can be attributed to their level of genetic relatedness. By comparing the difference between them on the variable of interest, scholars are able to parse out what proportion of individual differences result from genetic influences and what part comes from the shared family environment, such as might be experienced by siblings growing up in the same household, and unique experience, which are those events each individual experiences by themselves. Importantly, these unique experiences may themselves be genetically influenced because individuals select into their own environments based in part on their genetic disposition. Numerous studies relying on different populations, including Sweden, Denmark, the U.S., and Australia, and using different approaches and methods, such as adoption studies or molecular DNA analyses, provided similar evidence (Bouchard et al. 1990; Hatemi et al. 2010, 2011).

If genetics play a role in political attitudes and behavior, as appears to be the case, the question becomes why? By what pathway can this occur? What role could possibly be served by genetics in somehow supporting a system of beliefs that in the modern world differs dramatically across regions, continents, and over recent generations?

First, to dispel any myths, and to also diffuse the views about genetics espoused in the mass media, there is no single gene for attitudes or any complex behavior. One-to-one mapping of gene equals behavior is not likely or even possible. Rather, genes are composed of deoxyribonucleic acid (DNA)<sup>1</sup> and make functional molecules, such as proteins and ribonucleic acid (RNA); it is these molecules that provide the basic building materials and instigate the chemical reactions in our bodies. They are critical in forming the cell's architecture. However, proteins cannot produce more proteins, and when a cell needs more proteins, it must rely on code provided by one's DNA in one's genes. The stimulus to create proteins that lead to hormone release and uptake and eventually alter our emotion and cog-

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<sup>1</sup> The DNA code of a gene is the sequence of its individual building blocks, labeled A (adenine), T (thymine), C (cytosine) and G (guanine); these nucleotides explicate the exact order of a protein's building blocks.

nitive states come strictly from the environment. Thus, genetic influences are not determining behavior. Rather, they provide particular probabilities.

Understanding that genes have no direct role in causing complex downstream behaviors, but rather inform the psychological dispositions that influence perception, emotion, and affect, among other states, is it still possible to ask whether modern day attitudes are specifically subject to genetic influences? An evolutionary approach has helped answer the question of why we have political attitudes at all. That is, political values appear to be so important for human functioning and survival that we have relied on them as part of our species' development. Ancestral humans faced many of the same dilemmas we face today, including questions and challenges related to how to protect family members and friends from predators and enemies, how to find a mate and raise children, how to defend against disease and exploitation, and how to manage strong emotional reactions appropriately within a social context. However, these quandaries took place in the context of small hunter-gatherer bands composed largely of kin embedded in tight social networks where everyone knew one another, and not within a large nation state. As a result, these issues were not framed as large scale public policy issues.

However, today, in the modern nation-state context, these same problems require a larger political scaffold to successfully coordinate social and political action. In this way, proclivities in these domains come to be expressed in the modern world as political and social attitudes. Yet, as a result of assortative mating, genetic drift, migration, culture, and local ecological exigencies, people differ greatly in their basic preferences surrounding these enduring challenges. We witness this variance now as difference along the left-right political spectrum in response to modern day versions of eternal challenges surrounding sex and reproduction, defense and out-group protection, and other issues related to survival and procreation in a social context.

From this perspective, enduring issues that might have challenged all people, including our ancestors in their attempt to survive and reproduce, are those most likely to continue to elicit strong feelings over time (see Hatemi and McDermott 2011). Specifically, issues involving sex and reproduction, as well as those involving defense of in-groups against out-groups, such as military actions and immigration, prove to be the most contentious on-

going topics of debate between those on the political right and those on the political left. And indeed, these topics seem to present more heated debate than those surrounding more technical or obscure topics, however critically important to national prosperity, such as energy or regulatory policy. Most evolutionary psychologists tend to think that genetic changes occur over millennial time, but clearly environmental forces can exert tremendous force on such changes, as would occur in the case of mass genocide, for example. In addition, social institutions often prove impervious to change once established; anyone who has dealt with a large government bureaucracy knows that oftentimes the particular policies seem to have no rhyme or reason. Recent work shows that the specifications for the size of the space shuttle booster rockets essentially derive from the width of two horses, the original basis for the foundation of roads, and later railway tracks upon which such structures must be transported. Thus, genetics may change faster, and social structures more slowly, than observers might fully realize.

### **3.8.3 Genetic and environmental influences on political ideologies**

Differences between opposing sides of the liberal–conservative divide appear to cover a wide variety of critical domains. Recent work by Jonathan Haidt (2012) demonstrated that those on the political right and political left invoke divergent values in their moral reasoning. Specifically, he found that social liberals remain primarily concerned with issues of fairness, harm toward others, and care of others. Social conservatives also care about these issues, but they embrace several other values as well, including a concern for order and authority, a premium on loyalty, and a deep preoccupation with issues surrounding purity and sanctity, such as those that might be invoked in debates over topics revolving around sex and reproduction (Moretti and dePelligrino 2010).

Interestingly, the basis of democratic governance rests on the notion of rational deliberation. Yet such deliberation fundamentally depends on an assumed supposition about human nature, which is that everyone starts out equally, and everyone can be made to see “reason,” which evidence indicates is pure fantasy. In other words, those engaged in democratic discourse believe that others see, hear, and feel the same things they do, and that dispute rests entirely on the basis of differences in interpretation of such stimuli (Hatemi and McDermott, in prep.). With enough discussion and debate, each person can set forth their position and to try to convince others of its veracity. But what if others literally did not see, hear, and ex-

perience the exact same stimuli the way that their political opponents do? The last 40 years of research, including our recent work, indicates, and provides evidence, that this indeed appears to be the case across many sensory and somatoemotional domains. That is, it is not that we simply don't understand one another's view, but rather that we literally don't view the same reality. People on the political right and those on the political left actually pay attention to different aspects of the exact same image (Krasnow et al., in prep.). Thus, differences do not exist simply at the level of interpretation and evaluation but actually at the level of perception and attention.

There are hundreds if not more articles along this line of research. However, one linked to ethnocentrism might suffice. A great deal of the literature has focused on how fear influences individuals to mobilize, and take more aggressive positions. Such research has assumed that all individuals start out equally conditioned to experience fear in the face of particular stimuli. However, using a population of twins and their relatives, we have shown that individuals differ in their baseline level of fear. This fear is genetically informed, and it is through the genetic pathway, not the stimulus pathway, that fear is related to anti-out-groups attitudes (Hatemi et al, in prep.). In other words, some individuals simply appear to have a lower dispositional threshold at which they experience threat, this propensity is genetically informed, and it is through their threat sensitivity that people are primed toward ethnocentric attitudes. However, this process does not work in isolation. It is through social learning that the target out-group is identified. In other words, the tendency to experience fear at a certain level has a genetic propensity, but which ethnic or religious or other out-group will trigger that sense of threat will differ depending on environment and processes of cultural and social learning. Interestingly, this propensity exerts a clear and predictable effect on important public policy issues, such as those involving defense, which is precisely the kind of domain in which we would expect to see such a concern differentially emerge. Some applied work has examined the neurobiological bases of fear and anxiety to Post Traumatic Stress Disorder (PTSD) (Charney et al. 1998; Liberzon and Sripada 2008).

Further, individual differences appear to exist at a basic perceptual level as well. In experimental work we have conducted, conservatives and liberals literally focus on different aspects of the exact same visual image, and this tendency emerges across four distinct domains: sexual, disgust, defense,

and military (Krasnow et al., in prep.). In each case, liberals are more likely to focus on the faces of individuals in an image, whereas conservatives are more likely to focus on symbols of authority, such as badges and weapons. In addition, when we manipulated the verbal narratives associated with each image, to indicate that the picture resulted from either human action or an act of nature, liberals and conservatives again chose predictable, but different, aspects of the image to concentrate on as a result of the narrative manipulation. In this way, it becomes possible to re-interpret previous finding that show that conservatives proved more physiologically reactive to threatening images (Oxley et al. 2008) , such as a spider, than liberals, as a manifestation not of greater propensity to the same threat, but rather as being more likely to actually focus on the most threatening aspect of the same image.

The combined data suggest the possibility that some individuals have a genetic disposition for greater perception of, and reaction to, threatening stimuli, while others may have a more investigatory or exploratory response, or pay greater attention, and respond more, to a victim or the potential for harm. Evolutionarily it may have proved adaptive to have both types of individuals in any given society to best respond to different sets of challenges (Orbell et al. 2004). As with cooperation, it may well be that frequency dependent selection establishes dispositional population equilibriums between those who withdraw and those who confront fear. Such preferences would exert an effect on many top down information processing systems, including those that control attention and perception. In this way, liberals and conservatives literally see and hear different aspects of the same exact same stimuli, suggesting that basic perceptual differences underlie some of the downstream perceptions we witness. This matters because simply presenting individuals with more or different information in an attempt to convince them about the bankrupt nature of their own cause, or the value of ours, may not work because different individuals literally attend to different aspects of the exact same sensory stimuli.

Such data, taken together, strongly suggest a top down processing role for the function of political ideology across myriad domains. In other words, political ideology serves the purpose of orienting attention and processing the emotional meaning of such information in predictable, but divergent, directions. Such genetically informed propensities can affect not only attention and emotion, but also cognition and behavioral tendencies.

### 3.8.4 Ramifications for population differences

The reason the genetic basis for this individual variance in political ideology matters is not because people can differ genetically across entire populations, but because once a mean is set in the population through culture, institutions, or resources, changing those value structures is not simply a matter of training or new social processes.

For example, in work we have conducted with Karen Stenner (Hatemi et al. 2011), we found systematic differences across populations, using the *World Values Survey*, in support for tolerance for those who differed along a host of political and social dimensions. Specifically, those in Arab countries showed the least political and social tolerance for those whose values differed from their own, while those in Scandinavia and Northern Europe demonstrated the most. Because the foundation of democratic society rests on such tolerance, prospects for the successful transition of Arab populations into functioning democratic societies resting on a foundation of widespread support for minority (or even majority, in the case of women) rights, seems low, or at least lower than it might be in other parts of the globe. What is important about this finding is the juxtaposition it presents with explorations of the same phenomena in western populations. If culture sets the mean—that is, the norm of attitudes and genetically informed individual differences within that culture in part sets the range—then the proposition that simply teaching people that tolerance is good represents an absurd strategy to make people more responsive to democratic governance. We elaborate on the reasons for this below.

### 3.8.5 Importance to the operational community

A clear discrepancy exists between public consumption of genetic information, including its significance, predictive power, and legal implications, and the much more subtle categorization and understanding sought by behavior geneticists and other scholars. This can make it difficult to sell a campaign based on differences in genetic propensity.

However, to reduce the prospects for recruitment to violent extremism, a clear awareness of genetic liability may prove useful. Tailoring policies to fit specific populations and ideologies may prove both more effective as well as more cost efficient. Targeting policies to particular populations clearly recognizes the critical role played by environmental circumstances and cultural forces, including the narratives to which particular individu-

als are exposed. Some individuals will be more vulnerable to such messages than others, just as some are more likely to respond to provocation with violence, as opposed to sanctioned political action. Ascertaining who is most vulnerable to such messages and threats *within, and specific to, each* population, and how such propensities might be ameliorated through environmental intervention, is a goal that can be shared by geneticists and social scientists alike.

If genetics influences politics, as the evidence strongly indicates, this means that some aspects of political beliefs, those that appear to be informed in part by disposition, may be quite difficult to alter. Of course, as we noted, these influences do not exist in a vacuum; rather, they emerge in complex interaction with environmental factors, cultural forces, and social structures that may prove more amenable to intervention.

This places many of our foreign policy challenges in new light. If malnourished mothers suffering from famine and stress in a civil war are more likely to give birth to children more prone to risk taking or aggression, then policies that shift the focus from adult intervention to intervention designed to improve women's reproductive care will translate into generational changes in the propensity toward violence in their progeny. Similarly, policies that assume that education and socialization alone will prove sufficient to convince others of the value of democratic governance may be doomed to failure in those areas where support for the values underlying such a policy may be low. However, this does not mean that policies designed to target those individuals at greatest genetic risk for engaging in violence, to try to ameliorate those environmental conditions that might trigger such action, might not prove more successful at reducing the risk of radicalization and the turn to extreme violence.

For example, earlier work has show that men with a particular genetic polymorphism are more likely to engage in violence under conditions of provocation; however, they are only more likely to do so if they themselves have experienced higher levels of traumatic life events (McDermott et al. 2009). This means that even among those who are genetically disposed to engage in violence at higher levels once instigated, there are numerous avenues by which they might be deflected. Specifically, they will be less likely to engage in violence if they are not provoked, as might occur if they felt invaded or otherwise forced to live in a society whose values felt alien. And even when that is the case, they will be less likely to engage in violence if

they have not had hard childhoods, as might happen if a father or brother was killed by enemy forces.

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### **3.9 Neuro-cognitive science and technology: Assessing and affecting social behavior and avoiding Icarus’ folly**

*Dr. James Giordano*

#### **3.9.1 Introduction**

To date, most efforts toward global relations, and national security and defense, have focused upon social and cultural factors influencing patterned violence, including terrorism. Given that these acts are devised and articulated by human actors, and humans are most accurately defined as biopsychosocial organisms that are embedded within and responsive to geocultural environments, then I opine that it is important to address and discern those biological, psychological, and social factors that dispose and instigate violence. In this light, an important—and yet unaccomplished—task is to more accurately and completely identify those factors that contribute to patterned violence, so as to enable movement toward the use of various interventions and policy alternatives to stem such acts. The challenges posed by this task are both 1) to understand the mechanisms that precipitate patterned violence, and 2) to provide practical and ethical options to affect, alter and/or impede these mechanisms.

#### **3.9.2 Neuro-ecology: The interaction of neurobiology and culture**

Current neuroscientific perspectives consider biological organisms to be complex systems nested within complex (environmental) systems. Interactions within and among systems are based and depend upon numerous

variables of the (internal and external) environments. Given the definition of *ecology* as a study or system of reasoning about the interrelation of organisms in their environment or place of inhabitation, consideration of a neuroscience of human ecology (i.e., neuro-ecology) must address interactions between individuals, groups, and environments framed by time, place, culture, and circumstance. This mandates an appreciation of culture as an important force in determining the interactively neural-cognitive/emotional-environmental (i.e., bio-psychosocial) dimensions of human functioning. At the most basic level, *culture* refers to a medium for the development of living material, and it becomes important (if not necessary) to evaluate how “culture” engages and sustains the set of shared material traits, characteristic features, knowledge, attitudes, values, and behaviors of people in a common place and/or time. This definition rightly reveals that culture establishes and reflects particular biological characteristics (that develop, and are preserved in response to environments), that can be expressed through cognitions and behaviors. In this way, culture is a medium for bio-psychosocial development, and a forum and vector for its expression and manifestations. Defining the neural bases of such biological–environmental interactions may yield important information about factors that dispose and foster various actions—including violence.

Neural systems function in relationality, enabling individual agents or actors to intuit, relate, and react or respond to the multiply tiered environments in which they are nested, as depicted in Figure 29.

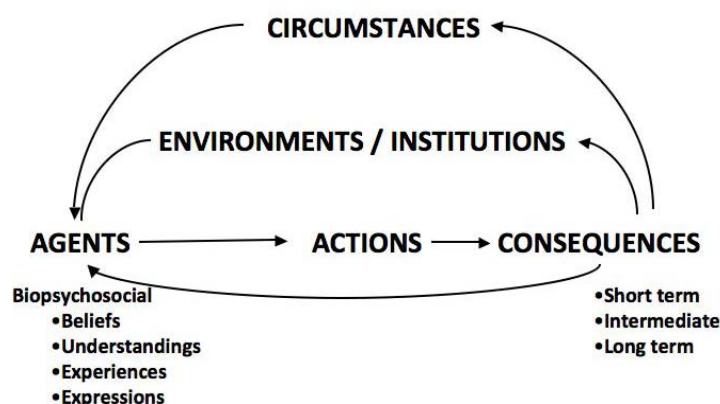


Figure 29. Interacting domains of environments, agents, and actions.

Neural systems function in decision-making by enabling orientation of the present to recollection of the past, to anticipate future outcomes and consequences (based upon extant predispositions and prior experiences) so as

to influence and determine certain attitudes and actions. This can be simplified (to a considerable extent) and summarized to represent a neural OODA (Observe, Orient, Decide, and Act) Loop. There is a tendency toward Bayesian functions, in that prior experience and activities of component networks within the system create “weighted” or biased patterns of neural network activity that are hierarchically expanded into patterns of cognitions, emotions, and behaviors. This process is schematically illustrated in Figure 30.

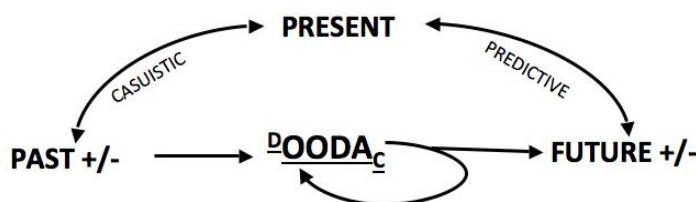


Figure 30. Neurocognitive dynamics relating past, present and future experiences relative to decision-making. Note that the OODA loop is modified by previous dispositions (D) and resultant consequences (C).

### 3.9.3 A Role for neuroscience and neurotechnology: A convergent approach

An expanding body of literature supports the use of neuroscientific techniques and tools (i.e., neurotechnologies) to provide new insights into how emotional systems are manipulated to affect the perception of the past, present, and future. This may allow us to facilitate how we utilize neuroscientific and neurotechnological advances. However, it is important to note that each and all of these neuro-cognitive approaches possess particular capabilities and limitations. For example, neurogenetics and neuroproteomic assessments can provide detailed information about neural predispositions, and the presence of neural biomarkers that have been putatively associated with, and may be inferentially predictive of particular cognitive, emotional, and behavioral characteristics. However, it is well recognized that it is difficult—if not often erroneous—to attempt linear or direct correlation of population genomic and individual genetic and proteomic markers to psychosocial traits and states, given the complexity of single- and multiple-gene effects, and the ongoing dynamics of genetic-phenotypic, and environmental interactions in shaping psychosocial outcomes. Various types of neuroimaging (such as computational tomography, CT; functional magnetic resonance imaging, fMRI; and diffusion ten-

sor imaging, DTI) provide generally good spatial resolution of regional activity in the brain; however, the temporal fidelity of these techniques leaves much to be desired. Neurophysiological techniques, such as quantitative electroencephalography (qEEG) and magneto-encephalography (MEG) have good temporal resolution, but tend to lack finely grained spatial integrity.

Many of these shortcomings can be delimited through the convergent use of multiple forms of neuroscience and technology (e.g., genomics and genetics; proteomics; neuroimaging; individual and group socio-behavioral analyses, etc.), so as to provide an integrative montage or mosaic of information about neuro-cognitive predispositions and individual and group characteristics that may influence patterns of cognitions, emotions and behaviors. The proposed use of these neuroscientific and neuro-technological approaches is to: 1) assess individuals from selected geographic and cultural regions; 2) create iterative data bases to develop comparative and normative inferences specific to characteristics of groups and populations within these geo-cultural domains; 3) employ these data to model neuro-biopsychosocial dynamics that might contribute to violence; 4) use these data, models, and norms to better define and predict individual and group behaviors, and 5) engage this understanding to mitigate factors that foster or initiate violence.

It is important to note that such neuroscientific and neurotechnological approaches are not intended to be applied to all members of a given population; rather, it is critical to accumulate an amount and levels of data that are necessary and sufficient to extrapolate group comparisons and predictions. This necessitates employment of computational technologies (e.g., large scale databanks, cloud computing) to afford the resources and services required to store, integrate, and retrieve such information with accuracy and expedience. In the practical sense, such data could be utilized to provide indications for individual or group tendencies toward particular cognitive, emotional, and behavioral trajectories, so as to indicate (or warrant) further, more finely grained assessment of certain individuals or groups, and initiation of some form of mitigating interventions.

### **3.9.4 Practical questions—ethico-legal concerns: Avoiding Icarus' folly**

Of course, this generates both questions of the ecological validity and reliability of any such assessments, as well as ethico-legal concerns about the value and probity of predictive neuro-cognitive assessments to compel var-

ious forms of pre-emptive intervention. Without doubt, there is the need to develop stringent technical and ethico-legal guidelines and standards for such use of neuroscience and neurotechnology—a project to which our group remains durably committed. I posit that the challenge reflects, and must address, important standing questions in the field. Namely, what are the nature and type of neurobiological characteristics that affect cognition, emotion, and behavior? Can these characteristics be accurately assessed, and what types and combinations of techniques, technologies, and metrics are required in this task? Can these, techniques, methods, and tools—if not overall paradigm—be used to 1) describe and perhaps predict biopsychosocial factors of group violence and terrorism, and 2) provide putative targets for multi-disciplinary intervention to mitigate or contain such violence?

In the main, I warn against succumbing to what I have termed “Icarus’ folly” of scientific and technological hubris: simply put, it is unwise—and inapt—to over- (or under-) estimate the capability of neurotechnology, and it is equally foolish to misjudge the power conferred by neurotechnology, or the tendency for certain groups to misdirect and misuse these technologies and the power they yield. In light of this, I advocate a concomitant dedication to both ongoing neuroscientific research, and full content ethico-legal address, analyses, and articulation of the ways that these approaches may be used, misused, or abused in contexts of national security, intelligence, and defense (by the U.S. and its allies, as well as other nations on the world stage). Prescriptions, proscriptions, and guidelines must be devised and implemented to ensure the technically apt and ethically sound use—and governance—of such methods and information.

### **3.9.5 Summary and conclusions: Implications for future research**

It is vital to develop an understanding of 1) the interactive nature of neuro-behavioral and cultural environment dynamics; 2) the mechanisms and multi-dimensionality of these effects; 3) how particular neural and cultural-environmental variables may be engaged to mediate, modify or mitigate certain cognitive-emotional constructs (viz., beliefs and expectations) and behavioral effects/outcomes (e.g., violence); 4) how existing or new neuroscientific techniques and neurotechnologies could be used and developed to facilitate improved evaluative and interventional capability, and 5) how these results can inform policy for preemption and intervention against patterned violence.

Toward these ends I propose:

- Catalyzing inter-disciplinary thought focused upon cultural-environmental neuroscience aimed at elucidating environmental-neurobiological interactions that may contribute to, or establish, defined (individual and group) patterns of cognition, emotion, and behaviors. Such studies should aim to illustrate genotypic, phenotypic, and neurotypic substrates of cognition, emotion and behaviors that are affected by various environmental (i.e., bio-psychosocial/cultural) variables.
- Developing networks and partnerships that enable continuity of neuroscientific and neurotechnological advancement, sociological analyses, and national defense agendas, and are equally dedicated to the ethico-legal and social impact of these developments, as relevant to informing and the formulating policy to guide and sustain public good.
- Focusing this understanding and these partnerships in a larger research agenda that builds upon the recent developments in genomics, brain research, neurotechnology, and social policy as a collaborative effort within and between various disciplines to fortify global relations and national security.

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## **4 Seeing the World As It Is: Complex Adaptive Systems Approaches as Multi-Source, Multi-Input Integrators**

### **4.1 Introduction**

*Lt Col David Lyle*

We slice up the world to make sense of it. It's inevitable—reality is impossible to consider all at once given the inherent limits of human cognition. As we develop from infancy, we first learn to distinguish between ourselves and other things, and then to classify those things in separate categories, gradually gaining understandings of similarities, differences, and the relationships between the various things we encounter. This knowledge is crucial to developing an independent ability to cope with the world we experience—as we learn more and more patterns and associations, our ability to predict and anticipate improves. Those who raise us intentionally limit the amount of change that we must deal with until we've developed sufficient maturity and context to deal with majority of the stimuli that we encounter. And as we reach adulthood, we find that we've built up enough understanding of the pieces of the world and their relationships to strike out on our own and even teach others, despite the fact that we can never fully understand everything that is going on. In the process, we also develop misunderstandings, misconceptions, and erroneous beliefs about the real way the world works that may not immediately manifest themselves as negative inputs to decisionmaking. Complete understanding is unnecessary and impossible to achieve; in general, what counts for success is having just enough understanding to survive and thrive under the conditions that you face. But having more understanding than you actually need—while simultaneously minimizing misunderstandings—is almost always the best bet if you want to not only to survive, but thrive.

The development of scientific understanding follows a similar path—we start with relatively basic ways to describe the world, and then develop more sophisticated ways to describe the various pieces of the world and how they interact with each other. Over time, we gather information and experience, and develop a collective intelligence passed down from genera-

tion to generation in the form of theories that explain how the world works. When we encounter phenomenon we can't understand, and develop notional theories to explain them until sufficient information comes in to develop a more empirically based theory that accounts for both the old information and the new. As our theories improve, so too should our ability to reliably predict cause and effect in the real world.

At least, that's the theory...but ironically, the more advanced our tools and theories get, it seems that it's only getting harder to predict what will happen next. Why is this? The answer is that the world is becoming increasingly connected, and these interconnections mean that single causes are having further reaching effects than they ever did before, creating many unpredictable ripples through the wider system from a single act. The models and descriptions of the world that were "good enough" for prediction and control yesterday may actually cause the outcomes we're trying to prevent today, and the blanket rules and policies that result from oversimplified notions of social systems increasingly create more unintended negative consequences the more complex the system becomes.. Our old, mostly linear descriptions of how the world works no longer sufficiently satisfy our demand for prediction. We need new tools and theories that describe and explain these adaptive processes of change with more precision and accuracy, matching more closely to the way the world really works. This is where complexity science may be able to help us.

Complexity means many things to many different people. For some, it is a relative measure of how well we can anticipate and keep up with the phenomena we actually experience in the world. Complexity can also describe a way of thinking, a realization that sometimes more can be understood by stepping back and looking at a system in the aggregate rather than by studying the individual parts in isolation. In a more formal sense, complexity science examines how networked systems change when individual agents adapt to each other and their mutual surroundings, often creating collective properties that can only be discerned and described in the collective sense. Examples of this include the wetness of individual water particles interacting, the warmth of a column of air, or the experience of consciousness that arises only when billions of neurons interact in the brain.

Complexity science as a discipline is still in its relative infancy, and while not all agree on exactly where its boundaries are, it is already improving our understandings of the way the world really works. As we study net-



works and systems with increasingly powerful tools of analysis, we are detecting similarities and patterns that seem to transcend levels of scale, whether we're talking about the nature of the microscopic world, the way the neurons in our brain are connected, or the way galaxies form. As we apply the language and concepts of complexity science to different problems, these common traits are allowing us to crossover models, metaphors, and ideas from one scientific discipline to others with often amazing results—in one notable example, analytical tools and methods that astronomers use to study the cosmos were adapted medical doctors to develop better tools to detect and analyze medical conditions in the human heart. If the adaptive networks are the common building blocks of evolution in the universe at all levels of scale, then complex systems theories may be the key to better understanding the driving forces behind creation itself.

This is not to say that we can expect to discover one common theory or mathematical formula that explains all adaptation—there are very different processes and mechanisms at work in the universe, and there is no single theory that can explain them all. But what we are increasingly noticing through the inherently interdisciplinary nature of complexity science is that there are *similar* processes of evolution at work in almost any adaptive system. As the tools to study one kind of system improve, there are usually benefits to applying similar analytical approaches and theoretical frameworks to other systems. The more we start using common terms and models to express these similarities, the easier it should be for people from different disciplines to find transferrable ideas that can be applied to solve their own problems. Common frameworks also help us organize disparate information, combining it to create a better picture of the whole. Analysis is important to gain understanding, but it is ultimately synthesis of many views and insights that creates useful models of the world.

The intent of this chapter is not to present a comprehensive view of a developing body of scientific thought and methods, nor to define the limits of the interdisciplinary community that advocates for it. Rather, this chapter proposes further, more detailed explorations of complexity science in the national security community. We need to seek out the experts in the field, and start constructive dialogues with them about the national security challenges that affect us all.

The two offerings showcase some of the potential benefits that better complex systems understandings may bring into the fields of intelligence and military strategy, but in truth, the potential benefits of producing better complex systems thinkers will not be confined to these fields, or even to military applications alone. In the first essay, Dr. Claudio Cioffi-Revilla discusses how complexity science can be applied to attain improvements in intelligence analysis, and also to help us better understand the inherent limits of any such analysis. In the second selection, Lt Col Dave Lyle proposes that complexity science offers terms, concepts, and a theoretical framework for adaptation that will help military strategists better understand how the threat or actual use of military force can influence dynamic social processes, thereby improving the formulation and execution of military strategy within the larger context of grand strategy.

These selections present the authors' interpretations of the current state of the science and the potential future possibilities that this science may make possible, but does not claim absolute certitude that our interpretations are either empirically complete nor mutually exclusive of other interpretations. It is our sincere hope that others will research the topic of complexity themselves, engage in future dialogues to debate what we present here, identify holes in our arguments and theories, and replace our ideas and constructs with better ones.

As we fully engage with principles of complexity science, we'll find that our various theoretical models of the world, while still imperfect, will gradually converge towards each other, and become better representations of the way the world actually works. This will help us develop a better intuitive sense of what can be predicted and controlled in conditions of complexity, what cannot, and how we might be able to tell the difference. Armed with these improved understandings, our chances of choosing better strategies, force structures, messages, and courses of action should improve as well. Complexity presents challenges, but it also presents opportunities for those who seek to better understand its inherent logic—the common logic of all adaptive systems.

## 4.2 Complexity science for boosting intelligence analysis<sup>1</sup>

*Dr. Claudio Cioffi-Revilla*

What hope is there for attaining quantum improvements in intelligence analysis via the emerging science of complexity? Which kinds of questions are most productively addressed by complexity science when applied to intelligence analysis? Can complexity science contribute to intelligence analysis by “reducing uncertainty” (Fingar, 2012)? In terms of complexity science applied to intelligence analysis, what can we say that we have and can do now? What could we have but don’t have yet? What will never be feasible, due to fundamental uncertainty? This chapter addresses these and related questions on the present and potential contribution of complexity science to intelligence analysis. The goal is to provide insights—new methodological foundations, concepts, principles—leading to new opportunities for actionable intelligence based on complexity science.

This paper begins with a sample survey highlighting “what we have and can do” in terms of currently available complexity-based intelligence analysis. The next section examines “what we could have but don’t have yet,” which is a sample, since the whole universe is not known. The third section discusses “what will never be feasible due to fundamental uncertainty.” The concluding section returns to the first three questions posed earlier: hope provided by complexity science and the class of target questions for boosting intelligence analysis.

Complexity science “comes from”—i.e., originates from and is presently developing mostly in—an academic world that is remote from and practically independent of the world of intelligence analysis.<sup>2</sup> This chapter uses *Humanitarian Assistance/Disaster Relief* (HA/DR) as a significant issue-area of national security (Wood, 2002), to provide concrete specificity in the application of complexity science to intelligence analysis. Not only does HA/DR depend on intelligence analysis to provide vital actionable information and insights to decision-makers for executing and improving field operations; it also provides a strategic opportunity for advancing hu-

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<sup>2</sup> Complexity science links between academia and the IC have been rare but valuable (e.g., Smith, 2006, 2008).

manitarian values in the global system, consistent with our policy goals, national capabilities, and international obligations.<sup>1</sup>

#### 4.2.1 What we have and can do

Complexity science is an interdisciplinary field that investigates real-world phenomena, such as adaptation, self-organization, criticality, emergence, phase transitions, scaling, network structures, non-linear dynamics, and related non-equilibrium properties of complex systems and processes. Its three-pronged methodology is based on statistical, mathematical, and computational tools (Axelrod 2003; Cioffi 2010). The scope of complexity science is vast, encompassing a broad class of natural, social, and artificial (i.e., human-made or engineered) phenomena studied by many disciplines.<sup>2</sup> The defining feature of complexity science is its paradigmatic focus on non-equilibrium dynamics and structures, as opposed to the equilibrium-based paradigm employed in classical disciplines.

Why is complexity science relevant to intelligence analysis? Because many of the areas of research in this field appear frequently in the complex systems and processes found in the hardest challenges encountered in intelligence analysis. For example, in the context of HA/DR, intelligence analysts preparing assessments, estimates, or briefings require actionable and timely information on:

5. *Preparedness systems and processes* for disaster response, mitigation, stabilization, and recovery operations—the systems and processes available at the time of complex emergencies, and their interaction with relevant operational environments, need to be fully understood.
6. *Onset, location, intensity, duration*, and other features of disasters around the world, be they natural, anthropogenic, or infrastructural (Below et al. 2009; Vos et al. 2010), particularly the subset of those to which the USG responds (OFDA 2010).

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1 The lead USG agency for HA/DR is the Office of Foreign Disaster Assistance (OFDA) of the US Agency for International Development (AID). The Humanitarian Information Unit (HIU) is “a State Department-led interagency collaboration that aims to improve planning and response to overseas complex emergencies through improved information collection, management, and dissemination.” (Wood, 2002; HIU, 2012).

2 Bak (1996), Buchanan (2000), Ehrenberg (2011), Gros (2008), Hayes (2007), Miller & Page (2007), Mitchell (2009), and Waldrop (1992) provide introductions to complexity science.

7. Similar information on *displacement of persons, refugee flows, and related social dynamics*, both internally and in trans-border situations (Lu et al. 2012).
8. *Refugee camps* and other emergency settlement dynamics, including aspects of demographic growth, environmental and sanitation, medical conditions, security situations, and related aspects.
9. Critical vulnerabilities in *supply chains and responder organizations* as a complex ecology consisting of human and artificial systems for responding to complex humanitarian emergencies (also called “socio-technical systems” in complexity science and organizational theory; Lin and Carley 2003; Schneier 2006).

To obtain some of the most challenging actionable and timely information on these and related aspects of crises—be it in Haiti, South Sudan, Japan, Pakistan, Libya, or Syria, as the most recent instances—it is necessary to develop deep understanding of complex systems and processes that are relevant in the HA/DR domain.

Fortunately, complexity science can already provide some of this necessary, useful knowledge in terms of a set of concepts, theories, models, and research tools. For example:

10. *Power laws* provide warning about non-equilibrium systems that are susceptible to abrupt, seemingly unexpected but predictable change in the form of extreme events, such as the onset of disasters that interest IC analysts and responders (e.g., see the analysis of displacement patterns for the 2012 Haiti disaster in Lu et al. 2012). The value of power-law analysis for risk assessment is significant, because it enables the identification and computation of the probability (and hence risk) of extreme events in non-equilibrium distributions, which is many times greater (i.e., more likely) than in “normal” or bell-shaped distributions.
11. *Simulation models* enable analysis of “what-if” scenarios across a broad spectrum of intelligence questions that are too complex to solve analytically. An example of this is provided by the complex humanitarian effects of drought and other natural disasters, such as recently in East Africa and similar regions. Such scenarios can cover coupled socio-techno-natural systems with sufficient fidelity to examine the impact of anthropogenic and natural disasters to improve policies, assuming the availability of sufficient domain expert knowledge and computational resources. Examples of actionable intelligence using

- simulation models include optimal or at least improved locations for locating food and other emergency supplies, designing better refugee camps, preventing the spread of diseases (cholera, measles, TB, yellow fever, among the most common), synergizing relief organizations (governmental and NGOs), and similar complex operational questions.
12. *Network models* provide new insights on many organizations and spatio-temporal processes of interest to intelligence analysts (Carley and St. Charles 2011; Tang and Liu 2010), such as displaced populations and the complex network of supply chains and supporting critical infrastructure. This is also the case with the “humanitarian community,” consisting of a vast and complex network of governmental and non-governmental actors, as well as the formidable supply chains deployed in support of HA/DR operations across the world.
  13. *Criticality* and “bifurcation” theory provide a deeper understanding of “metastability,” or situations that are deceptively stable but in fact are fully capable of generating extreme events that will surprise decision makers. An example is provided by conditions at the Daadab Camps Complex in eastern Kenya, where approximately half a million persons are at risk of experiencing a much more severe compounded disaster due to the threat of lethal infectious diseases (cholera, measles, and similar pathogens). In complex humanitarian crises such situations can occur when there is growing potential for an even greater disaster, as in the 2011-2012 outbreak of cholera following the 2010 in Haiti between January 12 (magnitude 8.0 earthquake) and November (hurricane Tomas) of the same year. The onset of the hurricane season was, from a complexity perspective, akin to a driven threshold system, but so was the cholera disaster. Earthquakes, hurricanes, and epidemics result from similar criticality dynamics.

Today, based on these and other ideas from complexity science, we are able to draw on a better understanding of key aspects of HA/DR and reduce uncertainty in some key areas. This requires IC analysts to learn and remain current in key concepts, principles, empirical models and computational simulations—a demanding but rewarding imperative, especially for aspiring analysts entering the field.

A necessary caveat concerning what we have and can do is that, with specific reference to the ability of complexity science boosting intelligence analysis, not all of this has actually been done. Much remains to be done, even within the area of so-called “low hanging fruit.” Examples include

complexity-based interpretations of empirical distributions in HA/DR (e.g., rank-size distributions of refugee camps, time-between-calls on responders for various regions); network modeling and analysis of the “humanitarian community” (HC) in the real world of HA/DR operations; numerous GIS and visualization analytics (Thomas and Cook 2005) from a complexity perspective; and others presently ripe for complexity applications and capable of yielding significant decreases in uncertainty.

#### **4.2.2 What we could have but don’t have yet**

Discussing “what we could have, but don’t have yet” in regard to complexity-based intelligence analysis is challenging for several reasons: 1) the relevant basic science and technology evolves according to processes that are still poorly understood, as evidenced by the outbreak of cholera in Haiti, following the earthquake and hurricane; 2) many bright minds that will contribute during the time horizon of interest are not yet around; and 3) synergies in science and technology are among the most poorly understood—and surprising—of human activities. In essence, uncertainty underlies any attempt to predict “what we could have but don’t have yet” with a high degree of certainty.

However, in spite of these basic limitations, it is possible to identify a basic set of feasible, critical, and desirable analytical capabilities based on complexity science.

14. New *concepts* are needed to better describe the complex world in which we presently live and the future we will inhabit several decades from now. Intelligence analysts will use these concepts to better grapple with uncertainty and frame their analyses (i.e., assessments, estimates, briefings) with insightful ideas appropriate to complex issues of interest.
15. “There is nothing more practical than a good theory” (Levin 1945). We also need new *theories* to explain and understand complex systems and processes, not just describe them. We lack formally articulated and empirically validated theories about the causes of complex phenomena of interest to the IC analyst. For example, based on current trends in computational modeling, we will have better validated theories and tools to understand and manage complex crises in socio-techno-natural systems, such as social (i.e., political-economic-military) impacts of climate change. New theories are also needed to better understand and help mitigate intelligence failures.

16. New concepts and theories often inspire new *models*. Decision-theoretic models, game-theoretic models, and fuzzy set models were all inspired by new concepts and theories concerning human choice and reasoning. New computational models enable new forms of analysis that yield new insights and understanding by shedding new light on previously obscure topics. For example, future agent-based models will leverage not only artificial intelligence and multi-agent systems, but also big data, real-time GIS via persistent remote sensing and interferometry, and new visualization and sonification analytics.
17. New *tools* in terms of implemented decision support systems are built on concepts, theories, and models that will enable greater collaboration among IC analysts. Intellipedia and A-Space are two early examples in the IC, but so are the successors to those systems, such as *computational collaboratories* (Cioffi 2007, 2010; Smith 2008). Future generations of these systems must more fully exploit complexity science in areas such as early warning and forecasting, through exploitation of criticality metrics (e.g., power-law exponents and related parameters). Another example is the design and implementation of distributed computational simulation models for HA/DR scenario analyses, because—due to Amdahl’s law—significant increases in speed are necessary to analyze complex socio-techno-ecological models of HA/DR within useful time frames.

Breakthroughs are necessary for improving estimates, assessments, and briefings, which are the main products of intelligence analysts. In the HA/DR domain these will bring about significant progress in terms of planning, early warning, response, stabilization, and recovery phases. For example, real-time or near-real-time systems for monitoring health and security conditions in refugee camps worldwide should be feasible within the next decade, assuming proper investments in human and material resources. Such systems would significantly reduce uncertainty and highlight cases of hazardous meta-stability (as in the 2010 Haiti sequenced disasters) and other dangerous conditions. Some of the systems in operational use today, such as FEWS NET (Famine Early Warning System) and others like it, seem headed in such positive directions.

#### **4.2.3 What will never be feasible because of fundamental uncertainty**

Some things will never be feasible in intelligence analysis, due to fundamental uncertainty. Knowing something about these boundaries is as help-



ful as knowing what is or could be known. Where are the boundaries of what is possible in intelligence analysis? Three areas warrant highlighting.

#### *4.2.3.1 Human cognition*

This has a natural architecture and process that prevents us from achieving levels of objectivity that would be highly desirable in intelligence analysis. Scientifically well-documented syndromes include risky shift, groupthink, Allais' paradox, Kahneman-Tversky prospect asymmetries, and similar impediments that degrade objective reasoning (Heuer 2006; Tetlock 2006). Complexity science can help us better understand and cope with these phenomena, but they cannot be entirely eliminated.

#### *4.2.3.2 Surprises*

Surprises, sometimes extremely costly ones, are impossible to entirely avoid. A worthwhile goal is to minimize surprise by illuminating the future via increasingly advanced analytical methods. It must be recognized that the complete elimination of surprise is an impossible goal, given the complex nature of numerous coupled social, natural, and technological systems on which our civilization depends—now and in the foreseeable future. Each additional increase in the complexity of such systems—needed increases in response to desirable gains in performance—also promote the potential for surprise, even in the absence of adversarial attacks or nefarious acts. In a way, surprises don't come out of "the blue;" often they come from our own systems and their tendency is to become more complex (i.e., systems-of-systems-of-...-of-systems, where complexity grows exponentially, not linearly, and computability decreases rapidly). We trade quality of life improvements for increases in potential surprises of greater magnitude.

#### *4.2.3.3 Fundamental randomness*

Finally, fundamental randomness is ubiquitous in many complex systems and processes of interest to the intelligence analyst, even if randomness is not all of one form and can be characterized by different models. In the HA/DR area this means that for critical kinds of information (e.g., estimated time of onset, magnitude, or duration of disasters) we will always deal with distribution moments, not with deterministic certainties. Complexity science and allied disciplines (formal logic, probability theory, non-

linear dynamics) can help us better understand, reduce, and cope, but not completely overcome fundamental uncertainty.

#### 4.2.4 Conclusions

The first three questions posed at the outset can now be answered, based on the previous discussion:

18. *What hope is there for attaining quantum improvements in intelligence analysis via the emerging science of complexity?* Much hope, because the basic and applied science of complexity continues to make significant advances through new concepts, theories, and modeling tools that are relevant to intelligence analysts, providing contributions to actionable intelligence. For example, in the HA/DR area this hope will be especially rewarding, since it will mean saving lives. No one knows how many lives may be saved by improved actionable intelligence obtained through complexity science, but potentially a great many, and certainly more than in the past. Of course this assumes that we will be at least as smart in the future as we have been in the past, which is a challenge in itself. This requires efficient and effective preparation, starting with training and evaluation, areas where the DNI can play a critical role as the core node of the IC.
19. *Which kinds of questions are most productively addressed by complexity science when applied to intelligence analysis?* Those that involve the main characteristics of complex systems and processes: i.e., nonlinear interactions, emergence, self-organization, scaling, and criticality, among the most relevant. In the HA/DR area these features are ubiquitously present, along with others unrelated to complex systems, in all phases in the life cycle of disasters, from anticipation to recovery, including preparedness, early warning, response, and stabilization. Haiti, Japan, Pakistan, Somalia, and other locations of critical interest are part of a badly needed global hazard map of HA/DR activity that the DNI should sponsor and participate in developing, along with other stakeholders in the humanitarian community (OFDA, HIU, and the Inter-Agency Standing Committee, among others).
20. *Can complexity science contribute to intelligence analysis by reducing uncertainty?* Yes, when uncertainty can be decreased by new knowledge brought to bear on intelligence problems requiring actionable information. For example, for HA/DR this means reducing uncertainty by developing better understanding—via complexity science—of causal mechanisms of displacement, decision-making, migratory be-

havior, refugee flows, and camp settlements, among major topics in the portfolio of an HA/DR intelligence analyst.

Complexity science can add value to the “intelligence preparation of the battlespace” for HA/DR, an activity that can be evaluated for its performance in ongoing and future missions. It should be added to the fledgling toolkit for training young intelligence analysts, as was recently done in the 2010–2011 IC Associates mentoring program sponsored by the NIC.

In conclusion, complexity science offers some new solutions that help supplement or boost what IC analysts already do through more traditional methods and analytical tradecraft in use today, while much remains to be improved. Above all, it offers a new perspective—sometimes orthogonally positioned—that often allows an analyst to see what is otherwise invisible or not intuited using earlier approaches. “Reducing uncertainty” (Fingar, 2012) is as valid a standard for improving intelligence analysis through complexity science as through earlier approaches. What is ultimately needed is greater training in and everyday practical reliance on complexity science to help meet challenges faced by intelligence analysts and their decision-making customers. The ODNI is in a unique position to advance such a vision—supported by a systematically formulated mission, goals, and related activities—by providing valuable and sustainable inter-agency collaborations on advanced analytical methods and tradecraft based on complexity science and related disciplines.

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### 4.3 Complexity and military strategy

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Should anyone be more interested in good science than a military strategist? Strategists are tasked with scoping the entirety of human experience, and must design plans for action that achieve desired outcomes in a world that cannot be completely sensed, predicted, or controlled. To add to the challenge, they must anticipate active opposition by adaptive enemies, consider the reactions of various third parties, and account for the possible effects of almost infinite geographic, meteorological, environmental, technological, economic, social, cultural, and neurological factors. There is no field of study concerning humankind that is irrelevant to the task of formulating military strategy; any strategist who is not both excited and intimidated by this realization is probably in the wrong billet. But if they do

grasp these things, strategists should also grasp the fact that they're going to need to seek every possible advantage they possibly can to succeed in an unpredictable world. Good strategy without good science behind it is not really strategy... it is merely good luck taking far too much credit for itself.

It's time we reexamined our most fundamental assumptions about the science and military strategy in light of the science of today, not the science of yesterday. Embracing concepts of complexity in military thinking will not only improve the way we understand the role of military force in our attempts to secure a better and safer world—it will improve the way we look at *everything*. And in a much bigger sense, learning to think in terms of complexity may be the way to save us from perhaps the biggest threat to our national security—*ourselves*.

#### **4.3.1 Science and warfare**

Science and warfare have always been inseparable. Despite this, many strategists are still skeptical of attempts to bring new scientific insights to enhance the “tried and true” practices of military theory and operational art, and their caution is not unjustified. Past attempts to implement “Scientific Ways of Warfare” have indeed led to new tools and insights, but they have also usually failed to live up to initial promises and expectations, or became so methodologically unwieldy that they quickly became impractical for use by the typical operator in actual combat conditions (Bosquet 2009; Ryan 2011). While strategists correctly sense that they must trust their intuition over promises of “miracle cure” solutions to intractable strategic problems, they also err if they think that they're not applying science when they do this.

The value of intuition is only as good as the value of the consciously and subconsciously derived mental scientific models behind the heuristics that commanders use to make decisions. Theorists like Clausewitz have described the process of using these mental models to make decisions in the face of complexity and uncertainty with terms like military genius, Coup d'Oeil (“stroke of the eye”), and Fingerspitzengefühl (“finger tip feel”). Modern commanders seek to describe with the concepts of situational understanding and mission command. But if strategists are not careful, the mental templates they're applying to making strategic assessments and evaluations - and to weigh and judge assessments from others—may be based on cartoonish representations of reality. This presents the potential to create conclusions and predictions that are just as dangerous as ones

derived from a finely tuned scientific model that is being used to answer questions it was never designed to answer. Neither answer will match the reality of the situation, and the worse the mismatch is, the less likely that our chosen courses of action will produce desired results in complex social and technological systems.

Past efforts to find the right blend of art and science in military strategy have been hampered because there were no unifying theoretical framework to help organize and harmonize various insights from classical military theory, modern operational art, and the scientific community. But with the new insights, terms, and theoretical constructs from complexity science, that may be about to change.

#### **4.3.2 What do we mean by “complexity”?**

At its core, complexity science is about understanding the fundamental and universal nature of *dynamic change* in the real world as adaptive agents react to one another in often unpredictable ways. Nonadaptive entities following relatively simple fixed rules can indeed generate complex behaviors that are difficult to individually predict, and in a very real sense, the experience of confronting complexity is a relationship between the observer and the observed, with the degree of complexity that we experience depending on our mental ability to account for the various agents and their changing configurations (Bar Yam 2004). The learning to play tic-tac-toe, checkers, and chess is a good illustration of the relationship between preparation and perceived complexity. When we were very young, tic-tac-toe may have seemed as complex to us as checkers felt to us as pre teens, and chess probably still feels like now. But each felt less complex to us as we developed the mental models—the heuristics—we needed to cope with the increasing possibilities and combinations of outcomes as we progressed from game to game.

But there is a difference between experiencing complexity, and distinguishing between what is merely complicated and what is complex in a more formal sense. Part of the reason that these games become easier to play the more we play them is because the basic rules don't change between games, allowing us to improve our play as our intuitive models of both the components and the flow of the game improve. Games like this are merely *complicated* in a computational sense, because the entities and their relationships don't change on their own. Modern computers have solved both tic-tac-toe and checkers to produce rule sets that guarantee

draws, and may someday solve chess when computing capacity increases. But this is only because the basic rules and relationships between the pieces and the board don't change.

But under conditions of complexity, the move that won the game yesterday may be the losing move today if you're playing the same game with an opponent who has successfully adapted. In *complex adaptive systems*, the entities in the system can sense the environment and proactively change their reactions to fit their conditions, in essence changing the rules of the game (Page 2011). To extend the chess metaphor, military strategists aren't playing two or even three way chess—they're playing several games at once on the same board (chess, go, and backgammon perhaps), and other games on other boards (some of which overlap), with various players coming in and out of the game. The players are changing their patterns of competition and cooperation with the other players constantly, and compete at one level even as they cooperate at others. The gameboard extends into multiple dimensions and timelines, and wraps around corners that can't be seen, but the unseen pieces still influence the results of the game. The shapes of the squares and the legal moves of the pieces are constantly in flux relative to one another within a few predictable ranges of parameters, but no one can agree on what defines winning so long as one is not eliminated from the game, the only sure way to lose in the long term.

Ready to play? In fact, you already are...

#### **4.3.3 Why complexity science in strategy, and why now?**

The word "Complexity" is everywhere you look in our strategic guidance and assessments recently, and there's good reason for it. For over a decade, the mightiest military in the world has been locked in combat with relatively unsophisticated enemies in terms of comparative material resources and military strength. While the U.S. has often performed brilliantly in the tactical arena, and decimated much of the Al Qaeda network that planned the terrorist attacks of 2001, our larger strategic ends have been more difficult to achieve, and continue to elude us despite the best efforts of some of our finest military thinkers. Not even the lessons of past "David vs. Goliath" conflicts have seemed to help us sufficiently grasp the complexity of the new operational environment, as we watch events continue to unfold in unpredictable and often troubling ways in both Iraq and Afghanistan, where the specter of "irrelevant" tactical victories from Vietnam threatens to haunt us once again.



Our failure to achieve satisfying results has not been for the lack of willingness to adapt in the face of complex challenges. We've made significant modifications to our strategic orientation in the midst of these conflicts, essentially changing the wheels on a moving vehicle while under fire with new counterinsurgency doctrine, command and control procedures, and force structures designed to help us cope with the complexity we've experienced in various conflicts around the world. Despite these efforts, "victory," "endstates," and "conflict termination" have remained elusive. Part of the problem stems from our use of the terms themselves, which tend to be couched as either unachievable absolutes, ill defined "catch all" bumper stickers, or single frame snapshots chosen by a seemingly arbitrary process. None of these are not very helpful for describing what we're really looking to achieve with our military operations. We have goals that describe frozen moments in time, but what we really need are terms and concepts that describe *dynamic patterns of societal adaptation* in which issues of competition and cooperation can be resolved without resorting to violence. Using static endstate conditions to define victory is akin to using a single number—Gross Domestic Product—to evaluate the health of the national economy. It tells you something about output during one moment in time, but offers no way to judge if the health of the economic system will improve over time. If you're only worried about making short term quarterly goals, this snapshot may be exactly what you need to get paid and get out before the system crumbles. But if you're in the game for the long haul, you care more about the long term trend than the picture of the day. In terms of our current operational art, we're much better at taking snapshots than capturing motion and the subprocesses that generate it, but it's the latter we should care about the most.

Inadequate theory and measures may be one of the main culprits behind much of the cognitive dissonance that is gripping much of the joint force today. An entire generation of U.S. military personnel have now experienced real complexity firsthand on the battlefield, yet they still lack sufficient cognitive tools and terms to translate their intuitive insights into the concepts and language that can assist us in improving our strategic performance. As a result, cognitive dissonance in the joint force is increasing at the very same time that our operational environments are getting even more complex due to the forces of globalization and budget austerity. As Thomas Kuhn described it in *The Structure of Scientific Revolutions*, the "normal" military science that worked well enough in the past is now failing us in the face of increasingly complex challenges (Kuhn 1996).

#### 4.3.4 A somewhat unfortunate name

It's somewhat unfortunate that the body of thought that is likely to give us the most significant enhancement in our basic understandings of how the world works has been labeled "complexity," because our minds are wired to simplify. Many military members cringe upon just hearing the word complexity itself, and it is not surprising at all when you think about what the military is usually asked to do. When order has broken down, all other solutions have failed, and the situation is edging towards chaos, it's the military that is usually called on to use restore order, stability, and balance. At first glance, complexity seems to be the polar opposite of what the military seeks to achieve through the employment of force.

But the desire for simplification and control is not limited to the military by any means—it is part of our basic neurology to prefer the illusion of certainty and control over the reality of uncertainty (Kahneman 2011; Eagleman 2011). This is further exacerbated by the fact that the languages of strategy, policy, and science are all different, even when they're discussing similar topics. Eliot Cohen, a respected academic and policymaker, recently warned an audience of academics that even mentioning "dependent and independent variables" in presentations to most policymakers usually elicits "faint sighs and the clicking of eyeballs" (Cohen 2012).

But specific scientific terms and concepts have evolved for a reason—they allow us to describe phenomena with more precision, bring more fidelity to our inquiries, and help us to better discern otherwise hidden patterns in complex systems. Simplification can be the mark of genius, but oversimplification can be downright dangerous when dealing with complex systems—the more complex the system, the more unintended and unwanted consequences blanket rules and policies will create. Once we get past the cognitive aversion to the scientific terms and concepts associated with complex adaptive systems, and see how using the common language of adaptation can help us bring insights from various schools of thought together under the same roof, there will be some very pleasant surprises and revelations on the other side. Ironically, the new concepts will most likely grant military strategists *more* cognitive ease as they become more familiar with them, and find that the new language and models provide ways to express things they've always comprehended at an intuitive level, but never had the right terms and metaphors to adequately define and express them before. It will also arm military strategists with powerful new conceptual tools to deal with ambiguity and uncertainty, giving them a much

better ability to discern where military force can usefully be applied within the context of a much more comprehensive approach to influencing complex social systems. Once the initial resistance to change is overcome, military strategists will realize that complexity is not an obstacle to the outcomes they seek—it is actually the very thing that makes creating our desired outcomes possible.

#### **4.3.5 The holes in our current theories**

There's no perfect model of the world, but as George Box famously stated, some wrong models are useful. When our experience applying our old models to operational challenges leads to unsatisfying and perplexing results, the normal reaction is to call the situation an aberration, and retreat back to "tried and true" principles that worked in the past. The natural tendency of military strategists and planners is to try to break the problem down into smaller, more manageable problems, decide which ones are the most critical to solve first, and sequentially move from the most urgent priorities to the less pressing ones, reducing risks where one can along the way. For centuries, this reductionist method has been the tried and true method of using military force to achieve military force, and when it hasn't, we've sent in the reserves to make up for mistakes and surprises.

When we don't have theoretical models that explain the whole as well as the parts, we tend to make assumptions about causation that conform more to what we're comfortable believing that they do to explaining what really happened, which may be inherently unknowable when you consider the human factors in decision making. Lacking a fuller understanding of the way the world really works, we also lack a full understanding of why we've been successful in the past when we have deemed ourselves to have been successful. Many imagine that "decisive" victories like the Allied triumph in World War II were caused by the force of our arms convincing our enemies that they were defeated, forgetting that in both cases that U.S. occupation was the preferable option to Soviet occupation as the continuum of German and Japanese society continued beyond the immediate devastation of 1945. We extend that incomplete and simplified interpretation of events – that sufficient force can bend political will, and assume that force applied to the right nodes of the enemy system can achieve such decisive results once again - and often this is sufficient to achieve out limited, short term objectives with a preponderance of force.

But this basic theoretical assumption behind this belief - that you can force your desired endstates by adequately destroying, denying, or controlling nodes of the enemy system until the enemy gives up the will to resist - is far too simplistic to explain the myriad of factors that played into group decisions to abandon violent conflict. Real victory comes from the opposite of destruction - it comes from setting the conditions for voluntary complementary adaptation between societies, and by getting former enemies to become stakeholders in the kind of future you desire. Assuming that easily detectable or measurable factors like force attrition were the operative mechanisms for past success, and ignoring factors that are less obvious but may actually be more causal, may cause military planners to take the wrong lessons from history. When incorrectly derived theoretical templates are applied to complex future scenarios, harmful or even disastrous unanticipated cascading effects become even more likely, causing vicious cycles of incorrect action and reaction that are difficult to escape (Dörner 1996).

Our current operational art concepts currently model the world with concepts like Centers of Gravity, Critical Capabilities, Critical Vulnerabilities, Critical Requirements, and Decisive Points. These methods are very effective at identifying the *key parts and capabilities* of enemy systems that we can try to influence through either threat or use of force, and this is an especially useful approach if what you want to do is to *destroy* the enemy system. The problem is that our current concepts are not very good at describing the *dynamic processes* through which we can *shape or convert* enemy systems that remain unbroken into neutral or friendly ones. We need better models that more accurately describe the way key physical and cognitive variables in adaptive social systems interact dynamically—and how the importance of certain variables changes over time depending on those dynamics. Our current operational concepts aren't fully up to the task, but complexity science can help us design better ones.

#### **4.3.6 The search for a dynamic intuition**

What if we created a model of human progress that could show the essential elements and relationships in something easy enough for almost any human mind to grasp, to help us understand where our more sophisticated models of the world are still lacking? Let's start by dividing the world into three major, yet artificially separated categories—ideas, groups, and tools—all existing within and interacting with the physical world (Fig. 29).

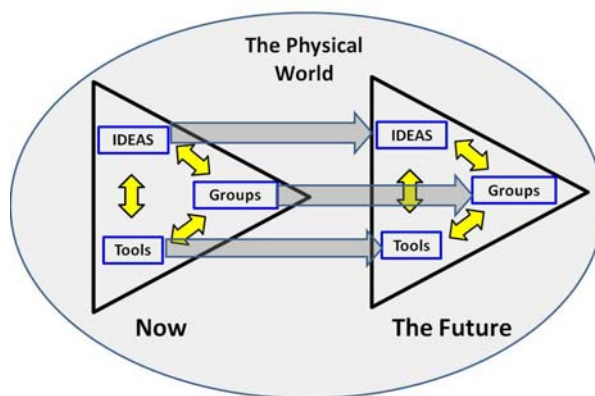


Figure 31. A very basic model of social adaptation.

All three of the major elements are connected, continually exerting influence over the others in a continuous process of mutual evolution. Ideas help organizations use and develop technology to deal with the physical requirements of existence; technology both depends on and influences the ideas that organizations of people develop to make use of it, and organizations tend to solidify around both technology and ideas, even as they develop new improvements of each. And of course, these three elements all influence, and are influenced by, the development of the others simultaneously over time, as indicated by the arrows between triangles.

These basic elements are nothing new to military strategists—we have existing theories that help us deal with all of these. Military strategists combine *ways* (ideas for how organizations can use technology to shape events in the physical world) and *means* (technology and organizations working together using common sets of ideas) to achieve *ends* (a future relationship between all three that is different than the current one) within acceptable probabilities and degrees of *risk* balanced over different time-scales. We can describe where we are now; we know where we want to go tomorrow; and we know which elements of the system are most important in terms of situations, desired endstates, centers of gravity, critical capabilities, critical vulnerabilities, and critical requirements. If something is causing a problem, we destroy, neutralize, or physically control nodes of the system with military force.

So what are we missing in our current theories that is described in this model?

We're missing adequate theories and models to describe the arrows...

More precisely, we're not very good at describing the physical and cognitive mechanics behind the dynamic processes depicted by the arrows, and have no taxonomy that currently describes all of the means we have at our disposal to influence dynamic adaptation of individuals and groups. How can we claim to be architects of positive change using the instrument of military force if we don't have a good model that describes both the fundamental building blocks *and* the fundamental dynamic processes behind change?

#### **4.3.7 A universal framework for successful adaptation**

The key insight of complexity science, the fundamental cognitive framework that allows us to organize our insights from every other science, is that *the basic processes of adaptation and evolution are the same for all adaptive networks*. Greater complexity comes from simpler building blocks interacting with one another from the bottom up, creating new properties and behaviors that cannot be described by looking at the individual parts of the system alone. Complexity science describes this as *emergence*. Whether we're talking about the assembly of chemical compounds, neurons in our brains forming ideas and storing memories, the evolution of biospheres, the generation of economies, and even to the formation of galaxies, the basic process of emergence is the same. Change at any level of scale is really all about how networks form, grow, dynamically interact, collapse, and reform again. Emergence describes the process of how new order can rise from the chaos after the smoke of destruction clears, and at its core is what complexity science is all about. For military strategists seeking "better peace on the other side of war," the value of such a theoretical concept should be blindingly obvious.

The physical, electromagnetic, chemical, cognitive drivers of emergence and adaptation are referred to as *attractors*, the properties which allow adaptive systems to react in different ways to the environments they confront is called *variety* or *diversity*, and the process by which the environment is sensed is called *feedback*, and the reaction that occurs or is chosen based on that feedback applied to some internal model for change is called *selection*. These components and actions make up the basic algorithm that describes emergence in any network, and is the root of all evolutionary progress in all systems and networks. If you want to understand change

and growth, and if you ever hope to make something grow in directions that you favor, you must understand which factors are driving these basic processes in the that system you hope to influence, whether they are conceptual, mechanical, chemical, electrical, or social. Complexity science can opens up better comprehension and application of the current body of knowledge about dynamics, just as Bernoulli's key insight that any probability could be represented as fraction between 0 and 1 made the full power of mathematics available for the scientific study of probability and risk, which made most of the scientific innovations we take for granted today possible (Evans 2012). Since the same basic theoretic framework applies to all complex systems, you have a readymade conceptual framework to move from an understanding of one system to an understanding of new ones (Harford 2011).

This is not to say that the same factors are equally important at all levels of scale - physical shape and chemical or electromagnetic properties may drive adaptive reactions in simple nonliving networks, while the drivers of societal conflict like human norms and culture are the relevant attractors at that level of inquiry. Selection is driven by geometric shape or chemical reactions in nonliving systems, but social selection is made by a series of highly complex cognitive processes in humans—there's no point in trying to use the processes of quartz crystal formation to predict human behavior. The important thing is that once you have the basic framework and concepts to describe the process of adaptation itself in detail for whatever you're studying, you can then study the system you want to influence, and diagram out as many of the key nodes and attractors in the system as possible that have some effect on the patterns of social evolution that you are trying to influence. This helps you understand which nodes you can effect with your available ways and means, and which ones you can't, and which potential effects are likely to be inseparable "package combos". Knowing this, strategists can seek every possible means of leverage at their disposal to affect the system through every level of the adaptive process that can be accessed. They can also anticipate which unintended consequences may be inevitable while pursuing the desired ones. This helps strategists weigh the pros and cons of various courses of action, place bets, configure to observe key events as they unfold, and then place even more bets depending on the results of the earlier ones. This is the genesis—and genius—of strategy itself.

#### 4.3.8 The implications of the framework for strategists

In a sense, the language of complexity science—a description of how dynamic networks of all kinds adapt to each other—can serve as a Rosetta Stone for interdisciplinary scientific and theoretic intercourse, opening up previously unanticipated insights and applications as the different communities interactive creatively. If everybody is studying networks from different angles, and the models they're using are getting closer to the actual organic processes that drive the world, the various models and methods should increasingly converge towards each other. This is when the greatest insights and innovation will occur—when groups suddenly realize that the tool another group has developed is the missing piece of their own puzzle (Johnson 2010).

It's this sharing of insights that will help us to better ways to fathom the complexity of the dazzling and often confusing new world we've helped to create. The good news is that the same technological innovations that create increasing complexity can also help to resolve issues we've only partially understood before, and will likely reveal new insights about ourselves and the world we live in that we could have never have been detected without them. The military theorists of the past who we still respect and study used the scientific concepts to offer timeless insights about strategy. But their explanations were also constrained by the limits of the science of their time—it's a mistake to treat the works of past theorists as if they were Holy Writ sent down from above, without error or distortion. Instead, we should strive to be even more audacious than they were, and forge on to achieve new insights that will ultimately reaffirm the best ideas from the classical military theorists, explain things that the old theories couldn't, and perhaps even help us to reconcile points upon which the past masters seemed to conflict. Remember, the forebears we revere relied heavily on the science of their times. If they were here today, you can safely bet that *they* would be vitally interested in the latest insights from the social, neurological, and complexity sciences. Why aren't we?

The insights the technological tools of today can provide—when used correctly according to principles of good science—are indeed unprecedented. The proliferation of social media, portable electronics with geo-location, and pattern recognition software has made it possible to gain insights about human societal interactions that we never had access to before, and increasingly it is also driving those interactions in new and interesting directions. Just as computing technology and satellites revolutionized



weather prediction, social media has the potential to revolutionize the social sciences, economics, and the military sciences as human behavior manifests itself in increasingly measurable ways. Not only can we learn more about social networks from the theory of complexity, we can use the same tools that create more complexity to study complexity itself in real time. We are rapidly gaining capabilities to observe how social networks interact in near real time, helping us to look for patterns and cues that specific kinds of activities are occurring. This is not unlike the way weather satellites increased our understanding of how tornadoes formed when we discovered that hook clouds often precede their formation. By seeing the data visually, we were able to improve our ability to predict tornado formation, and issue more timely warnings that have saved many lives. Perhaps in the future we will be better able to identify the most significant precursor signs and correlations to conflict, helping us to either anticipate or preemptively act to prevent or lessen it (Lagi et al. 2011).

Complexity concepts and principles will also help us to develop better formal models to study the world, which in combination have been shown to improve prediction over either single expert prediction or random probability (Page 2012). And if military strategists are not familiar with the language and methods of scientific modeling, two negative outcomes will become increasingly probable - excellent work by brilliant scientists will be minimized or overlooked, and bad science will be adopted as if it were good science (Derman 2011; Seife 2010). Strategists need to both protect and assist scientists in the development better models and theories, and also help them guard against the very human temptation to try and make the problem fit the tool, when it should always be the other way around.

As we learn more about complex adaptive systems, we'll also increasingly realize that blanket rules and policies applied to complex organizations usually cause more problems than they solve as small actions have increasingly far reaching consequences (Fisher 2011). This principle explains the intuition behind the Chairman's recent White Paper on Mission Command, which seeks to empower subordinates to act more autonomously, effectively matching their organization's complexity more closely to the environmental complexity of modern battlefields (Dempsey 2012). Additionally, having better understandings about how group dynamics can contribute to collective intelligence can help us build better intelligence and decision making organizations, while avoiding group dysfunctions like

groupthink and the halo effect (Surowiecki 2005). Better understandings of complex adaptive systems will help you avoid the traps of trying to apply to large a control to complex systems, and help you design better safety measures to prevent your own systems from collapsing under their own weight (Fischer 2009).

Our recent conflicts have also made it relatively intuitive that the military instrument alone is insufficient for creating the kinds of social adaptive patterns that lead to conflict termination and mutual prosperity between different social groups. Increasing calls for comprehensive, holistic and “whole of government” approaches are a recognition of social systems sensitivities to many variables, and some are proposing new strategic approaches specifically designed to deal with the world’s complex reality (Porter and Mykleby 2011). These approaches will only work with a unified theoretical framework to unite the efforts, and place the actions from various approaches in a common perspective for creating positive patterns of social adaptation with every mode and mechanism available. Complexity science offers the best hope for such a common framework, or at the very least, a common recognition that all have a part to play in creating or reinforcing those patterns. This creates potential opportunities to “harness complexity” by controlling what we can, planning around that which is beyond our control, carrying sufficient variety to cope with the inevitable surprises, and anticipating when and where “known unknowns” will arise so we can act as correctly as possible when they do emerge (Axelrod and Cohen 2000; Harford 2011).

#### **4.3.9 A measured but confident way ahead**

Complexity science will never give us all the answers we seek, nor will it provide a unifying theory that explains Life, the Universe, and Everything (not even Douglas Adams’ *Hitchhikers Guide to the Galaxy* made such promises!). But what complexity science *can* provide is a *theoretical framework to organize and bind insights from various disciplines and perspectives together as they arrive*, giving us the context we need to synthesize them with the other concepts we’ve gathered over our scientific lives. Most importantly, complexity science brings us a network of people, fellow seekers who are actively searching for new and interesting ways to make the world a better place to live. If you’re a member of the U.S. military, this is your mission as well, and you have an essential role to play.

To make quantum leaps forward in both military strategy and the science that supports it, strategists and scientists *must* meet each other halfway, with each understanding the importance of the other to achieving a better, more peaceful world. Given the awful power the military instrument can and must wield to secure the world from bad actors, and the incredibly far reaching consequences that the recommendations of military strategists can potentially have, we cannot afford to make strategic decisions with theoretical caricatures of reality based on partial and incomplete scientific notions anymore. Poor understandings of complex systems and the way they work can lead to bad choices that destroy our national power and prestige. If we fail to embrace complexity and what it can teach us about the far reaching effects of small actions in tightly connected systems, we will fall victim to our own choices—we will find in hindsight that our greatest enemy was ourselves. But if we embrace notions and tools of complexity, we can design systems and strategies that harness the ability of complex systems to create resilience and adaptive ability. Complexity presents challenges, but its creative engine is ultimately the very source of our strength and resilience. It's time for the military community to step up its intellectual game across the board, and embrace principles of complexity rather than to retreat from them. The people who trust us with the incredible power we yield—and the billions who must live with the consequences of our actions in a complex adaptive world—deserve nothing less.

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## 5 Public and Private Cooperation

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### 5.1 Introduction

For about the last decade, the U.S. government has been recruiting private business and non-profit collaborators to volunteer expertise, exchange information, and even operate together to enhance national security, provide humanitarian assistance, or promote economic development around the world. The main objective of such collaboration is to improve effectiveness. The federal government has worked to harness expertise it doesn't have—in the cyber arena, for example, by working with industry experts to help the U.S. government, its NATO allies, and the business community itself improve their cyber defenses. In the development field, Uncle Sam tapped into the operational experience of multinational businesses to bring clean water to poor communities in developing countries. With the U.S. Agency for International Development (USAID) leading the way, the Departments of Defense, Homeland Security, and State, among others, have been steadily increasing collaboration with private entities. Indeed, the most recent National Security Strategy calls on the executive branch to work with the private sector, repeatedly referring to public–private partnerships.<sup>1</sup>

Now, as government and private sector budgets tighten, working together and pooling resources serves a more immediate and overriding objective—achieving resource efficiency. Finite resources provide a compelling imperative for more and better public–private collaboration. Such collaboration—a voluntary interaction between governments and non-government entities where one or both parties draw upon the expertise of the other—

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<sup>1</sup> "National Security Strategy of the United States of America," May 2010, [http://www.whitehouse.gov/sites/default/files/rss\\_viewer/national\\_security\\_strategy.pdf](http://www.whitehouse.gov/sites/default/files/rss_viewer/national_security_strategy.pdf).

does not necessarily involve a financial transaction or even a contract. But if they do, the idea is to share the resource burden between the government and outside interested parties. The private sector can volunteer resources that the government cannot afford. For example, the U.S. European Command was able to help facilitate the provision of cyber expertise for one of our Baltic allies this past year—on a voluntary basis—that would have been prohibitively expensive for most, if not all, European countries.

But to be truly efficient, public–private partnerships need to be prioritized within agencies or within the government. Right now, they aren’t. They often involve working with the same companies or organizations, allowing the private sector (presumably with visibility across all collaboration with the government) to set priorities, rather than the government. Sometimes, projects are pursued because they are easy to execute, but not necessarily because the public–private collaboration will bring significant results aimed at addressing priority issues. Lack of institutionalization—models, guidelines, dedicated staff, and training—also results in resources committed to “one-off” or ad hoc projects when the same amount of effort could result in a strategic, long-term, sustainable program.

Transparent, fair relationships between the government and private sector entities can harness non-governmental know-how, resources, and patriotism to help address the complex national security and foreign policy challenges of the day. To be most effective, however, the government needs to decide where it needs private sector assistance most and focus on those areas. It will also have to work to clarify the legal, regulatory, and policy parameters of such interactions. Agencies will need to improve the internal processes for organizing and implementing public–private collaboration. Finally, measures of effectiveness will need to be developed, improved, and used to inform ongoing efforts. If these tasks are accomplished, public–private collaboration can be a particularly timely variant on decades-long efforts to improve the functioning of the U.S. military and government agencies.

## **5.2 “Jointness” evolves to “whole-of-society”**

Fostering non-commercial relationships between the government and the organizations outside of it is one manifestation of a “whole-of-society” approach to security. It is a step beyond the interagency “whole-of-government” concept and, when deliberately employed, can save the government money. For over a quarter of a century, since the passage of the

landmark 1986 Goldwater–Nichols legislation, the U.S. military has been working to become more “joint,” to plan and execute military operations in a way that maximizes effectiveness and efficiency to achieve the objectives of the Department of Defense (DoD) and the commander-in-chief—as opposed to just one or more of the military services. Simultaneously, starting in the early 1990s, there was an increased tempo of peace and humanitarian operations, as well as the Clinton administration’s Presidential Decision Directive 56 (PDD-56), which mandated interagency planning. Agencies involved in international operations began to work on coordinating their efforts. Through the Bush administration, this expanded to include more agencies. In the wake of 9/11 and Hurricane Katrina, the concept of jointness was further extended to intelligence and domestic disaster recovery activities. Whole-of-government—the planning and implementation of policy and operations by all relevant agencies together—has become an accepted desirable way of achieving the federal government’s objectives.

Meanwhile, with globalization and the revolution in cyber communications, the actors and forces that determine our collective welfare and security proliferated, becoming more complex and intertwined. Increasingly, entities outside of governments have a determining, influential, or at least interested role in the dynamics of international relations and national security.

Partly due to this new environment, the U.S. government—DoD, the Department of Homeland Security (DHS), the Office of the Director of National Intelligence (DNI), the State Department, and USAID, among others—is working deliberately to harness private sector capabilities in its efforts to achieve national security, diplomatic, and development objectives. Meanwhile, the U.S. Southern Command, U.S. European Command, U.S. Northern Command, U.S. Pacific Command, U.S. Special Operations Command, and U.S. Africa Command all have full-time personnel dedicated to garnering efficiencies and fostering effectiveness for DoD by collaborating with the private sector—businesses, academic institutions, and nonprofits. These activities do not involve contracts or money changing hands. Indeed, they are voluntary and come at negligible cost to the government.

In its entirety, the government has moved beyond the enduring—and still critical—paradigms of private enterprises, like the Merchant Marine or Red Cross, pitching in to contribute in times of war or humanitarian disas-

ter to bring the full measure of the generosity and self-interest of our citizens to bear. It now seeks to cooperate in mutually supportive ways with organizations that are already active in geographic or functional areas—such as logistics, internal auditing, innovation, and entrepreneurship—to bring such skills to the government, international partners, and recipients of U.S. assistance. And this collaboration is often now intended to be enduring, not ad hoc.

Volunteers, such as the members of Business Executives for National Security (BENS), have worked at their own expense with the U.S. Southern Command, Special Operations Command, and others to study the business models of drug cartels and to make recommendations about how to counter illicit drug financing, logistics, and operations. At the request of the European Command, these businessmen and women have also provided advice to NATO forces in Afghanistan on contracting to counter corruption, and have helped the U.S. government and our NATO allies understand the extent of the Baltic States' vulnerability to cyber attack, something that would have serious implications for the NATO alliance.

Meanwhile, NGOs are increasingly working in tandem with the military on mutually agreed projects and objectives across the globe. Arzu, a Chicago-based NGO that is a significant foreign employer of Afghan women, and the non-profit Spirit of America have teamed up to sell “peace cords,” bracelets that symbolically and literally support U.S. and NATO operations in Afghanistan. Employment in Afghanistan generated by the sales of the cords creates an environment conducive to the success of those operations.

New, small NGOs with less compunction about teaming with militaries are emerging—with Spirit of America breaking the paradigm. Instead of simply operating side-by-side with government agencies, or on contract to them, Spirit of America was established in 2003 to explicitly address the needs that military personnel encountered among the Iraqi communities where they were deployed. This organization also responds specifically to requests from local citizens in Afghanistan that are forwarded by the U.S. military for items such as clothing, furniture, school supplies, and even a television studio. Dog Meets World, a small non-profit focused on public diplomacy and empowerment by getting photographs from volunteer photographers to children in developing countries, was linked to special operations forces in Afghanistan, with the objective of garnering Afghan goodwill for the special operators.



Since 2009, U.S. Southern Command's Navy component has conducted a humanitarian operation called "Continuing Promise," which delivers construction services, medical training and care, and other donations to the Caribbean, Central America, and South America. Groups such as Operation Smile, Project HOPE, and Rotary International have all participated. Finally, Project Handclasp, a U.S. Navy initiative with a non-profit foundation that distributes donated private sector materials (e.g., ambulances and school supplies) as Navy ships pull into already scheduled port visits, is coordinating its efforts with several military combatant commands.

The intelligence community (IC) is even getting into the public-private partnership business. Among its many interactions with the private sector resources, the IC is in dialogue with domestic energy and infrastructure experts to help assess terrorist threats as well as foreign vulnerabilities and activities. Meanwhile, the State Department and USAID have created offices for global partnerships where the mission is to bring private resources—including financial—to bear on priorities identified by the secretary and administrator. As Secretary of State Hillary Clinton put it, "The problems we face today will not be solved by governments alone. It will be in partnerships—partnerships with philanthropy, with global business, partnerships with civil society."<sup>1</sup>

Along with the military, the development community has been out in front in utilizing public-private partnerships. USAID's Global Development Alliance (GDA), launched in 2001, has partnered with corporations, foundations, and non-governmental organizations to leverage the resources and expertise of each to further international development (global health, education, and economic growth). Among other initiatives, USAID has worked with The Coca-Cola Company, an entity with a stake in global water supply and quality, on projects in 13 countries. Wal-Mart and USAID are working together in Brazil to educate farmers about environmental sustainability. As of 2005, USAID claimed about 400 alliances with more than \$1.4 billion in funds and leveraging more than \$4.6 billion in partner resources.<sup>2</sup> The Quadrennial Diplomacy and Development Review (QDDR), which provides the "blueprint for diplomatic and development efforts," declares, "We will embrace new partnerships that link the on-the-ground experi-

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1 Hillary Clinton, "Remarks at the Global Philanthropy Forum Conference," April 22, 2009, <http://m.state.gov/md122066.htm>.

2 USAID, "Global Development Alliance Overview," April 2007, [http://pdf.usaid.gov/pdf\\_docs/PDACJ761.pdf](http://pdf.usaid.gov/pdf_docs/PDACJ761.pdf).

ence of our diplomats and development experts with the energy and resources of civil society and the scientific and business communities.. .we will build strategic public–private partnerships that draw on the ingenuity and resources of the private sector, nongovernmental organizations, foundations, and community-based organizations.”<sup>1</sup>

These new “whole-of-society” efforts initiated by government to work with the private sector are not restricted to the U.S. EU officials assert, “Security is by definition cross-sectoral and cross-border, so you have to act externally to achieve internal security and vice versa.”<sup>2</sup> In 2006, NATO adopted the “comprehensive approach,” which acknowledges the indispensable role organizations outside of government can play in addressing 21<sup>st</sup> century security challenges, especially in conflict or post-conflict scenarios.

This approach “is assumed to be more than merely bolting civilian instruments on to a military operation or vice versa. It is not enough for each organization involved to carry out its own mission—whether military, humanitarian or development-oriented—successfully. None of these activities can succeed in isolation; instead they must be consulted as part of an overall plan so that they support and reinforce one another.”<sup>3</sup>

Nonetheless, while there has been much talk of whole-of-society efforts, action has been slower. Old ways of governing, operating, or literally doing business have persisted. Entrepreneurial engagement has not burst forth to accompany the recognition of the need for more and deeper public–private collaboration. Perhaps the cost of changing—always difficult for individuals and organizations—has appeared to outweigh the perceived benefits.

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1 U.S. Department of State, “Quadrennial Diplomacy and Development Review,” 2010, p. 22, <http://www.state.gov/documents/organization/153108.pdf>.

2 Security & Defence Agenda, “Getting In Step: Coordinating National Responses to Changing Security Threats,” February 24, 2011, p. 4, [http://www.securitydefenceagenda.org/portals/14/Documents/Publications/2011/Emergent\\_Threats\\_FinalReport.pdf](http://www.securitydefenceagenda.org/portals/14/Documents/Publications/2011/Emergent_Threats_FinalReport.pdf).

3 Peter Viggo Jakobsen, “NATO’s Comprehensive Approach to Crisis Response Operations,” Danish Institute for International Studies, October 8, 2008, p. 9, [http://www.diis.dk/graphics/Publications/Reports%202008/Report\\_2008-15\\_NATO\\_Comprehensive\\_Approach\\_Crisis\\_Response\\_Operations.pdf](http://www.diis.dk/graphics/Publications/Reports%202008/Report_2008-15_NATO_Comprehensive_Approach_Crisis_Response_Operations.pdf).

### 5.3 The case for collaboration: Effectiveness and efficiency

Public–private collaboration generally falls into several broad categories of activities: 1) sharing expertise; 2) exchanging information; and 3) executing projects and operations. Both parties benefit in tangible and intangible ways. For the government, the key advantage is access to expertise, analysis, skills, perspective, and resources not always available in the public sector. In the current fiscally constrained environment, the benefits of such collaboration to the government are obvious. Efficiency—saving money and other resources—accrues, and with the added private sector skills, insights, and resulting innovation, so does effectiveness. Like their business counterparts, these public-sector practitioners manage people, finances, organizational change, and “back office” operations every day. Sharing best practices—or in some cases, the worst ones—can be educational for those who manage our national security entities.

The private sector also offers an agility not often found in government. One NGO representative working to help veterans explains, “If NGO programs prove less effective or [the] needs shift, NGO programs are easier to end than a government program.”<sup>1</sup> As President Ronald Reagan quipped, “A government bureau is the nearest thing to eternal life we’ll ever see on this Earth.”<sup>2</sup> Businesses can often “fail” faster than their public counterparts, adopting lessons learned and forging ahead.

It used to be that the government drove innovation across all sectors in its defense and science laboratories, reducing the incentive for collaboration. That is no longer true. Much of the cutting edge work is now being done in the private sector. This is most obvious today in the field of computer and information technology, but extends to energy and nanotechnology, among other areas. As a result, the government relies on private sector expertise to maintain its lead in defense, space, and other endeavors related to national security. This dependency means that the government is also affected by private sector vulnerabilities—probably even beyond areas where the private sector has the technological lead. Through collaboration regarding, for example, shared threats on financial fraud and economic espionage, both government and industry can keep abreast of developing

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1 See the testimony of Kathy Roth-Douquet, Chairman, Blue Star Families, before the Senate Armed Services Committee, April 13, 2011, <http://armed-services.senate.gov/Transcripts/2011/04%20April/11-29%20-%204-13-11.pdf>.

2 Ronald Reagan, “A Time for Choosing,” October 27, 1964, <http://www.reagan.utexas.edu/archives/reference/timechoosing.html>.

challenges. The QDDR speaks for the State Department, USAID, and beyond when it asserts, “Private sector partners can add value to our missions through their resources, their capacity to establish presence in places we cannot, through the technologies, networks and contacts they can tap, and through their specialized expertise or knowledge.”<sup>1</sup>

For corporate or non-profit entities, collaboration with the government may offer access to information and sometimes intelligence, as well as legitimacy. The private sector often lacks the necessary information and/or ability to coordinate entities that often value their privacy and autonomy over concerted effective action. This is why protection of critical infrastructure—both brick-and-mortar and virtual—is a public-private effort. The government can serve as the honest broker to which corporations may safely disclose vulnerabilities or proprietary information, which the government can use to devise appropriate means to protect all corporations and society. Other issues, such as caring for wounded veterans, are best addressed through a comprehensive approach—which entails responsibilities for the government to provide health care and other support as well as for private organizations and individuals to provide employment and social support. And operating overseas, the government often has long-term international networks via its embassies, which even older corporations cannot replicate. Finally, of course, governments can offer access to funding.

In order to tap into the best minds and technology, the government must pay for it, or appeal to American philanthropy and patriotism. The appeal and response bring another benefit to government and society: promoting social service and responsibility. Organizations that team up with the government—especially when there is no direct business or personal gain involved—can foster patriotism, civic participation, and even raise public support for government and good governance. Individuals who engage with government in this manner gain a sense of accomplishment, lending their knowledge to our foreign-policy and national-security goals.

Businesses can also bolster their public image through collaboration billed as “pro bono,” or “corporate social responsibility.” Neville Isdell, the former Chairman and CEO of The Coca Cola Company, advocates “connected capitalism,” a system whereby businesses connect with governments, non-

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<sup>1</sup> QDDR, p. 68.

profits, and civic society to shape their core business strategies in ways that foster sustainable and profitable commercial growth and contribute to addressing social problems. He works to recruit corporations that pledge to partner with governments, communities, and NGOs to simultaneously further corporate interests and improve society. His motivation, in part, is a desire to help capitalism—which he perceives as currently under attack worldwide—evolve in order to survive.<sup>1</sup> Executives from General Electric, Sun Trust Bank, and United Parcel Service have signed up to Isdell's effort and their partners include CARE and USAID.

Non-profit research institutes, universities, advocacy organizations, and humanitarian organizations can also benefit from an association with the government by burnishing their credentials as purveyors of knowledge and expertise, or as agile, relevant actors. To the extent that the public views the government or its representatives, such as military officers, favorably and trusts it to seek qualified collaborators who have skill and integrity, private entities and individuals can elevate their public image.

Despite this, sometimes private entities and individuals prefer to work in collaboration with the government as separate entities, as opposed to joining the government as employees or contractors. This is true for Blue Star Families (BSF), a non-profit supporting and advocating for military families. "Public-private partnerships are key to BSF's philosophy. Military families serve and sacrifice because we parents, spouses, and children love our service member, and love our country, not because we love the Pentagon. In fact, many families prefer not to interact with 'official channels.' So it is right and fitting that the responsibility for helping families falls not only to the Pentagon or the individual services, but to the larger society as well."<sup>2</sup>

## 5.4 The challenges of collaboration

While these benefits of collaboration might appear obvious, obstacles to public-private efforts still exist, chiefly: 1) legal and regulatory restrictions; 2) lack of trust; and 3) the lack of proper institutionalization of public-private efforts.

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1 J. Scott Trubey, "Connecting With Capitalism," Portfolio.com, April 27, 2010, <http://www.portfolio.com/companies-executives/2010/04/27/nevil-le-isdell-taking-connected-capitalism-global/index.html>.

<sup>2</sup> Testimony of Kathy Roth-Douquet.

The laws and regulations that provide the framework for interactions between the private and public sectors have evolved over the years to address concerns about monopolies and government control. U.S. laws were formulated to ensure that businesses operate on a level playing field; transparency has been the hallmark of procurement regulations as one way to prevent any companies from gaining unfair advantages over others. As a result, all public–private collaboration must be designed so as not to provide special access to the government by one company or non-profit (to avoid the appearance of preferential treatment) or to suggest that the government, through its activities, endorses a particular corporation, product, or non-profit. This consideration may make it difficult to have a conversation about how organizations might collaborate, particularly in a long-term or sustained relationship, even in the case of unsolicited offers of assistance. Government officials must confer closely with legal counsel to discern among permissible and illegal or unethical proposals as well as to ensure that government equities are protected.

The restrictions on collaboration vary from agency to agency, and even within agencies. While DoD is prohibited from soliciting assistance even in humanitarian emergencies, USAID and State can solicit donations of goods, services, and even money. DoD can discuss general requirements and it can accept assistance or seek to avail itself of prior general offers of assistance. The rationale for the tighter restrictions on DoD is concern about creating a public perception or reality that voluntary donations or collaborations are being used to gain access or preferential treatment or, put in the most extreme terms, as a bribe or inducement to spur official action. Within DoD, there are also different regulations within services and down to the installation level pertaining to charitable activities on bases.<sup>1</sup>

Even when it comes to cyberspace—the area where the notion of public-private collaboration is most accepted—both sides are still somewhat hesitant because of the issue of trust. The private sector builds both the software and hardware that drives cyberspace. Private firms also own and operate much of the nation’s critical infrastructure. Yet they are generally loathe to broadly share information about vulnerabilities with anyone, much less the government. Executives worry that it could lead to public revelations of product or service flaws and of sensitive corporate intellec-

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<sup>1</sup> Ibid.

tual property or other proprietary knowledge. Corporations also harbor concerns about the potential use of such information in future lawsuits. Similarly, government is wary of divulging national security vulnerabilities or secrets to private entities, especially those that have international ownership or global interests.

The Enduring Security Framework (ESF), a public–private collaboration between DoD, DHS, DNI, and representative information technology and defense industrial firms, was designed to address some of these challenges. Participating CEOs and chief technology officers receive classified threat briefs on key cyber-security problems. Meanwhile, industry and government experts work in unclassified environments to identify and implement security improvements. To the extent that this forum has been successful, it might be a model for exchanging information and identifying opportunities for public–private collaboration across and among government agencies.

Privacy is a crucial concern that springs from the issue of trust. Executives worry about corporate privacy, but also about the privacy of their clients or customers, in effect the privacy of U.S. citizens. Meanwhile, the government is responsible for protecting the privacy of its citizens, but it can and does often weigh this against its mandate to ensure law and order and national security. Both parties have to believe that the other will protect the information and the privacy of the people to whom they are accountable. To date, they haven't. We need to find new ways for them to do so, if even on narrow issues.

To be sure, there are risks and therefore a need for vigilance to maintain a healthy separation between the government and civil society, to ensure compliance with national and international laws, and to protect privacy. But the laws that we have imposed on ourselves are not immutable. In this emerging security environment where non-state actors—terrorists, media magnates, cyber hackers, and others—can innovate with far fewer constraints, it is incumbent upon governments to consider how they might team up with new actors to further national and international interests.

Despite these realities and accomplishments, public–private collaboration is not universally understood and appreciated across the government. In the private sector, its value is better understood, but in neither sector is public–private collaboration sufficiently institutionalized. Right now, gov-

ernment reaches out to the private sector after plans have been made—and sometimes the original design impedes such collaboration in the first place. For example, it is difficult at this stage, in 2012, to bring the business sector in to help develop Afghanistan. If the international coalition of governments had sat down in 2002 with private sector companies, NGOs, and the Afghan government and forged a unified concerted plan for political and economic stabilization for Afghanistan, perhaps all partners could have effectively coordinated and leveraged resources to build a stronger Afghanistan faster.

Likewise, when it comes to developing plans to respond to humanitarian disasters, the military does so largely devoid of input from the private sector. The military plans to deploy people, ships, and aircraft, to open warehouses and send military medical teams, but with some possible exceptions, the commands don't seek agreements to coordinate or even share information in advance with international or local businesses (which often have their own contingency plans), non-profits, or medical volunteers to maximize the use of available resources and to improve on the timeliness of assistance. The result is a mad scramble after a disaster with random, uncoordinated private sector offers of assistance and action on the ground. Often, goods and goodwill are wasted.

This is all the more regrettable because companies on the ground often have the best information, while the U.S. government and international community have the ability to execute on a large scale. (Few noticed that some of the fastest responses—for example, to the earthquake in Haiti—were devised and executed by major multinational companies headquartered in the U.S.) If the two capabilities could be consistently linked, the impact might be significant. The same holds true for steady-state humanitarian assistance, where DoD refurbishes schools and medical facilities while USAID funds multi-year educational and medical programs. DoD and USAID do not team up together as a rule to develop humanitarian programs with the private sector—the U.S. European Command has decided, this year, to try.

One agency—the Department of State—has a Senate-confirmed advisor for global partnerships, but the others have senior advisors reporting at various levels to officials below the cabinet level. At DoD, there is a military-stabilization task force that focuses on business in Afghanistan and the efforts to encourage cyber collaboration with the private sector. Most delib-



erate, concerted efforts, however, are currently located within the combatant commands. The assignment of public–private responsibilities to officials with differing levels of seniority, or at DoD, to officials working for the military commands, rather than the policy offices, makes it difficult for public–private officials to coordinate, solve conflicts, and optimize public–private efforts.

As successful as public–private initiatives have been, there has been no concerted effort to develop policy and military doctrine to better delineate the proper types of collaboration and legal limits of such activities. A strategic approach to such partnerships would ensure that public and private resources are dedicated to priority problems, not dissipated, and that the return on investment for both sides outweighs the costs.<sup>1</sup> Such a strategy should be executed in conjunction with training and incentives to encourage the use of partnerships. All government agencies, as well as the inter-agency or White House, ought to consider incorporating non-governmental actors into the strategies they develop. Dan Runde of CSIS asserts, “The government is leaving many of the opportunities with the private sector ‘on the table.’”<sup>2</sup> At the same time it is important to remember, as USAID puts it, “[Public–Private Alliances] are NOT a ‘thing we do’ but a way we do things we do.” Public–private collaboration is a tool—much like strategic communications—used to further policy objectives; it should not be an end in itself.

The QDDR sets forth a list of actions that must be taken to initiate and sustain public–private collaboration or partnerships, including: 1) streamlining the process for developing partnerships, including standardizing the process, designating a single point of contact at each agency, and building a central database of partnerships; 2) enhancing training and incentives so that personnel can identify, develop, and maintain partnerships; and 3) emphasizing alliances and coalitions (i.e., seeking to link partnerships).<sup>3</sup>

## 5.5 Collaboration: A 21<sup>st</sup> century force multiplier

The government and private sector collaborate on a voluntary basis in many small and medium-sized ways—to respond to natural and man-

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1 Daniel F. Runde, “The Evolution of Corporate Social Responsibility: Cooperation between the Private Sector and the U.S. Government,” Center for Strategic and International Studies Critical Questions, March 16, 2011, <http://csis.org/publication/evolution-corporate-social-responsibility>

2 Ibid.

3 QDDR, pp. 68–69.

made disasters, prevent cyber or terrorist attacks, or to exchange information about the political–business environment in countries of interest. These efforts range from ad hoc to enduring, but rarely do government and private sector actors work together to identify common objectives and design government programs or business plans that are mutually supportive, leveraging one another to achieve a greater goal such as political stability or economic development.

By far, the biggest obstacle to public–private collaboration is the mindset, mainly on the government side. It takes extra energy and effort on the part of government officials to consider how to leverage the private sector. Corporations and non-profits are more accustomed to seeking interaction with governments, but too few really creative actors yet exist. Public–private advisors need to work extra hard to overcome the institutional mindset within the government and force officials at all levels to consider how they might work with outside parties. To most government employees, public–private collaboration seems either “nice to have,” at most suited only to humanitarian efforts, or “too hard” because of legitimate legal and ethical concerns. The legal restrictions, especially those aimed at preventing preferential treatment, reinforce a general reluctance to get creative with outside actors.

As a result, the most important conclusion to draw after about half a decade of working to promote public–private collaboration is that people need a strategy, framework, and process for designing and implementing it. First and foremost, public–private efforts must be prioritized and coordinated within agencies and across the government. Officials dedicated to public–private partnerships should work together to build strong relationships—as opposed to individual projects—with outside actors and society writ-large. Second, public–private initiatives should be designed with both partners present at the inception of policy, program, or business design. Finally, public–private collaboration should be recognized and accommodated by laws and regulations that provide greater flexibility to partner and clarity to both sides about what manner of collaboration is permissible and desirable.

For the national security community, priorities include stability operations, non-proliferation, energy protection, cyber security, and better business practices. As the National Security Strategy stated, “There must be opportunities for individuals and the private sector to play a major role

in addressing common challenges—whether supporting a nuclear fuel bank, promoting global health, fostering entrepreneurship, or exposing violations of universal rights. In the 21<sup>st</sup> century, the ability of individuals and nongovernmental actors to play a positive role in shaping the international environment represents a distinct opportunity for the United States.”<sup>1</sup>

Harnessing the know-how and resources of corporations, universities, research institutions, and charitable as well as development organizations, is and will be critical to maintaining U.S. policy innovation and effectiveness. Just as we need to invest in education and research to cultivate national competitiveness, we need to build relationships leveraging private sector expertise and capabilities to enhance both global development and U.S. national security.

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1 2010 National Security Strategy, p. 13.

## Appendix A: Human Development Index, Country Rankings, 2011

Very High	High	Medium	Low
Norway	Uruguay	Jordan	Solomon Islands
Australia	Palau	Algeria	Kenya
Netherlands	Romania	Sri Lanka	São Tomé and Príncipe
United States	Cuba	Dominican Republic	Pakistan
New Zealand	Seychelles	Samoa	Bangladesh
Canada	Bahamas	Fiji	Timor-Leste
Ireland	Montenegro	China	Angola
Liechtenstein	Bulgaria	Turkmenistan	Myanmar
Germany	Saudi Arabia	Thailand	Cameroon
Sweden	Mexico	Suriname	Madagascar
Switzerland	Panama	El Salvador	Tanzania
Japan	Serbia	Gabon	Papua New Guinea
Hong Kong, China (SAR)	Antigua and Barbuda	Paraguay	Yemen
Iceland	Malaysia	Bolivia	Senegal
Korea (Republic of)	Trinidad and Tobago	Maldives	Nigeria
Denmark	Kuwait	Mongolia	Nepal
Israel	Libya	Moldova (Republic of)	Haiti
Belgium	Belarus	Philippines	Mauritania
Austria	Russian Federation	Egypt	Lesotho
France	Grenada	Occupied Palestinian Territory	Uganda
Slovenia	Kazakhstan	Uzbekistan	Togo
Finland	Costa Rica	Micronesia	Comoros
Spain	Albania	Guyana	Zambia
Italy	Lebanon	Botswana	Djibouti
Luxembourg	Saint Kitts and Nevis	Syrian Arab Republic	Rwanda
Singapore	Venezuela	Namibia	Benin

Czech Republic	Bosnia and Herzegovina	Honduras	Gambia
United Kingdom	Georgia	Kiribati	Sudan
Greece	Azerbaijan	South Africa	Côte d'Ivoire
United Arab Emirates	Ukraine	Indonesia	Malawi
Cyprus	Mauritius	Vanuatu	Afghanistan
Andorra	Macedonia	Kyrgyzstan	Zimbabwe
Brunei Darussalam	Jamaica	Tajikistan	Ethiopia
Estonia	Peru	Viet Nam	Mali
Slovakia	Dominica	Nicaragua	Guinea-Bissau
Malta	Saint Lucia	Morocco	Eritrea
Qatar	Ecuador	Guatemala	Guinea
Hungary	Brazil	Iraq	Central African Republic
Poland	Saint Vincent and the Grenadines	Cape Verde	Sierra Leone
Lithuania	Armenia	India	Burkina Faso
Portugal	Colombia	Ghana	Liberia
Bahrain	Iran (Islamic Republic of)	Equatorial Guinea	Chad
Latvia	Oman	Congo	Mozambique
Chile	Tonga	Lao People's Democratic Republic	Burundi
Argentina	Turkey	Cambodia	Niger
Croatia	Belize	Swaziland	Congo (Democratic Republic of the)
Barbados	Tunisia	Bhutan	

## Appendix B: Best “Bang for the Buck” in HDI Outcomes Relative to Income, 2011

The capacity ratio column refers to a country’s ratio of actual performance on the HDI to its predicted performance, given its gross national income (GNI). Higher ratios indicate countries that over-perform their level of development; lower values indicate countries that underperform. Many underperforming countries are heavily dependent on high-value mined commodities, particularly oil and diamonds. Many highly performing countries are those that have high values on HDI indicators, which move comparatively slowly, but have experienced significant economic contractions (as in Zimbabwe and the Central Asian republics of the former Soviet Union).

Country	HDI	GNI	Capacity Ratio
1. Liberia	0.50	\$265	1.47
2. Zimbabwe	0.53	\$376	1.38
3. Cuba	0.90	\$5,416	1.32
4. Madagascar	0.61	\$824	1.28
5. Kyrgyzstan	0.73	\$2,036	1.28
6. Tajikistan	0.73	\$1,937	1.28
7. Georgia	0.84	\$4,780	1.25
8. Palestinian Territory	0.75	\$2,656	1.24
9. Tonga	0.81	\$4,186	1.23
10. Samoa	0.79	\$3,931	1.21
11. Moldova	0.75	\$3,058	1.20
12. Uzbekistan	0.74	\$2,967	1.19
13. Fiji	0.78	\$4,145	1.19
14. Armenia	0.81	\$5,188	1.18
15. Micronesia	0.73	\$2,935	1.18
16. Mongolia	0.74	\$3,391	1.17
17. Grenada	0.83	\$6,982	1.16
18. Ghana	0.63	\$1,584	1.16
19. Ukraine	0.81	\$6,175	1.15
20. New Zealand	0.98	\$23,737	1.14
21. Dem. Rep. Congo	0.40	\$280	1.14
22. Guyana	0.72	\$3,192	1.14
23. Philippines	0.73	\$3,478	1.14

24. Sri Lanka	0.77	\$4,943	1.14
25. Bolivia	0.74	\$4,054	1.14
26. Jamaica	0.80	\$6,487	1.13
27. Palau	0.85	\$9,744	1.13
28. Jordan	0.77	\$5,300	1.13
29. Nicaragua	0.67	\$2,430	1.12
30. Togo	0.53	\$798	1.12
31. Kiribati	0.70	\$3,140	1.12
32. Albania	0.80	\$7,803	1.10
33. Belize	0.77	\$5,812	1.10
34. Bosnia and Herzegovina	0.80	\$7,664	1.10
35. Romania	0.84	\$11,046	1.10
36. Honduras	0.69	\$3,443	1.09
37. Montenegro	0.83	\$10,361	1.09
38. Chile	0.86	\$13,329	1.09
39. Estonia	0.89	\$16,799	1.09
40. Australia	0.98	\$34,431	1.09
41. Ireland	0.96	\$29,322	1.09
42. Czech Republic	0.92	\$21,405	1.09
43. Slovenia	0.94	\$24,914	1.09
44. Paraguay	0.73	\$4,727	1.09
45. Israel	0.94	\$25,849	1.09
46. Serbia	0.82	\$10,236	1.09
47. Burundi	0.41	\$368	1.08
48. Viet Nam	0.66	\$2,805	1.08
49. Kenya	0.58	\$1,492	1.08
50. Korea (Republic of)	0.95	\$28,230	1.08
51. Latvia	0.86	\$14,293	1.08
52. Iceland	0.94	\$29,354	1.07
53. Ecuador	0.78	\$7,589	1.07
54. Dominica	0.78	\$7,889	1.07
55. Bulgaria	0.82	\$11,412	1.07
56. Spain	0.92	\$26,508	1.06
57. Hungary	0.86	\$16,581	1.06
58. Japan	0.94	\$32,295	1.06
59. Argentina	0.84	\$14,527	1.06
60. Greece	0.90	\$23,747	1.06
61. Italy	0.91	\$26,484	1.05
62. Peru	0.78	\$8,389	1.05
63. Saint Lucia	0.77	\$8,273	1.05
64. Lithuania	0.85	\$16,234	1.05

65. Uruguay	0.83	\$13,242	1.05
66. Canada	0.94	\$35,166	1.05
67. Slovakia	0.88	\$19,998	1.05
68. Indonesia	0.67	\$3,716	1.05
69. Macedonia	0.78	\$8,804	1.05
70. Germany	0.94	\$34,854	1.05
71. Netherlands	0.94	\$36,402	1.04
72. Maldives	0.71	\$5,276	1.04
73. Norway	0.98	\$47,557	1.04
74. Bangladesh	0.57	\$1,529	1.04
75. Syrian Arab Republic	0.69	\$4,243	1.04
76. Poland	0.85	\$17,451	1.04
77. France	0.92	\$30,462	1.04
78. Panama	0.81	\$12,335	1.04
79. El Salvador	0.72	\$5,925	1.04
80. Sweden	0.94	\$35,837	1.04
81. Cambodia	0.58	\$1,848	1.04
82. Tunisia	0.75	\$7,281	1.03
83. Denmark	0.93	\$34,347	1.03
84. Croatia	0.83	\$15,729	1.03
85. Kazakhstan	0.79	\$10,585	1.03
86. Costa Rica	0.79	\$10,497	1.03
87. Vanuatu	0.67	\$3,950	1.03
88. Malta	0.87	\$21,460	1.03
89. Nepal	0.52	\$1,160	1.03
90. Haiti	0.52	\$1,123	1.03
91. Mexico	0.81	\$13,245	1.02
92. Finland	0.91	\$32,438	1.02
93. Belgium	0.91	\$33,357	1.02
94. Colombia	0.75	\$8,315	1.02
95. Malawi	0.47	\$753	1.02
96. Algeria	0.74	\$7,658	1.02
97. Libya	0.80	\$12,637	1.02
98. Switzerland	0.93	\$39,924	1.01
99. Solomon Islands	0.57	\$1,782	1.01
100. Venezuela	0.77	\$10,656	1.01
101. United States	0.93	\$43,017	1.01
102. Austria	0.91	\$35,719	1.01
103. Cyprus	0.87	\$24,841	1.01
104. Sao Tome and Principe	0.56	\$1,792	1.01
105. Turkmenistan	0.72	\$7,306	1.00



106.	Egypt	0.69	\$5,269	1.00
107.	China	0.73	\$7,476	1.00
108.	Uganda	0.51	\$1,124	1.00
109.	Malaysia	0.79	\$13,685	1.00
110.	Eritrea	0.42	\$536	1.00
111.	Barbados	0.82	\$17,966	0.99
112.	Tanzania	0.52	\$1,328	0.99
113.	Belarus	0.79	\$13,439	0.99
114.	Portugal	0.83	\$20,573	0.99
115.	Azerbaijan	0.73	\$8,666	0.99
116.	Myanmar	0.54	\$1,535	0.99
117.	Brazil	0.75	\$10,162	0.99
118.	Iraq	0.62	\$3,177	0.98
119.	United Kingdom	0.88	\$33,296	0.98
120.	Dominican Republic	0.72	\$8,087	0.98
121.	Suriname	0.71	\$7,538	0.98
122.	Thailand	0.71	\$7,694	0.98
123.	Hong Kong, China	0.91	\$44,805	0.98
124.	Antigua and Barbuda	0.79	\$15,521	0.97
125.	Seychelles	0.79	\$16,729	0.97
126.	Russian Federation	0.78	\$14,561	0.97
127.	Laos	0.57	\$2,242	0.97
128.	Comoros	0.49	\$1,079	0.97
129.	Lebanon	0.76	\$13,076	0.97
130.	Iran	0.73	\$10,164	0.96
131.	Cape Verde	0.60	\$3,402	0.95
132.	Mauritius	0.75	\$12,918	0.95
133.	Rwanda	0.48	\$1,133	0.94
134.	Andorra	0.84	\$36,095	0.93
135.	Morocco	0.61	\$4,196	0.92
136.	Bahrain	0.81	\$28,169	0.92
137.	Namibia	0.64	\$6,206	0.92
138.	Luxembourg	0.85	\$50,557	0.91
139.	Guatemala	0.60	\$4,167	0.91
140.	Turkey	0.70	\$12,246	0.90
141.	Zambia	0.47	\$1,254	0.90
142.	Bahamas	0.77	\$23,029	0.90
143.	Singapore	0.85	\$52,569	0.90
144.	Saudi Arabia	0.77	\$23,274	0.90
145.	India	0.57	\$3,468	0.89
146.	Congo	0.56	\$3,066	0.89

147.	Cameroon	0.51	\$2,031	0.89
148.	Brunei Darussalam	0.82	\$45,753	0.88
149.	Senegal	0.49	\$1,708	0.88
150.	Trinidad and Tobago	0.75	\$23,439	0.88
151.	Liechtenstein	0.88	\$83,717	0.88
152.	Pakistan	0.53	\$2,550	0.88
153.	Gambia	0.45	\$1,282	0.86
154.	Benin	0.46	\$1,364	0.86
155.	Lesotho	0.48	\$1,664	0.86
156.	Gabon	0.67	\$12,249	0.86
157.	United Arab Emirates	0.81	\$59,993	0.85
158.	Mauritania	0.47	\$1,859	0.84
159.	Central African Republic	0.38	\$707	0.83
160.	Nigeria	0.47	\$2,069	0.82
161.	Papua New Guinea	0.48	\$2,271	0.81
162.	Yemen	0.47	\$2,213	0.81
163.	Timor-Leste	0.50	\$3,005	0.81
164.	South Africa	0.60	\$9,469	0.81
165.	Sierra Leone	0.37	\$737	0.79
166.	Oman	0.67	\$22,841	0.79
167.	Ethiopia	0.38	\$971	0.78
168.	Côte d'Ivoire	0.41	\$1,387	0.78
169.	Swaziland	0.51	\$4,484	0.77
170.	Botswana	0.60	\$13,049	0.77
171.	Guinea	0.36	\$863	0.76
172.	Afghanistan	0.41	\$1,416	0.76
173.	Kuwait	0.71	\$47,926	0.75
174.	Guinea-Bissau	0.37	\$994	0.74
175.	Qatar	0.76	\$107,721	0.74
176.	Bhutan	0.50	\$5,293	0.73
177.	Mali	0.37	\$1,123	0.72
178.	Djibouti	0.42	\$2,335	0.71
179.	Sudan	0.40	\$1,894	0.71
180.	Niger	0.31	\$641	0.70
181.	Mozambique	0.33	\$898	0.67
182.	Angola	0.46	\$4,874	0.67
183.	Burkina Faso	0.32	\$1,141	0.63
184.	Chad	0.32	\$1,105	0.63
185.	Equatorial Guinea	0.46	\$17,608	0.56

## Appendix C: The Conflict and Peace Literature and Data

The Correlates of War Project was launched in 1963 at the University of Michigan by Dr. J David Singer and was instrumental in moving the study of international relations in the direction of more objective, data-driven, scientific analysis. This torch has been taken up by a number of other research centers in response to demands from policymakers, international agencies, and aid donors that policies be evidence-based, and therefore grounded in quantitative research. Collectively these research programs have produced a large body of evidence on the causes of warfare and the conditions essential for peace which is of enormous relevance to many aspects of national security decision-making and long-range planning.

A description of the typical research approach employed in this field comes from the *2009–2010 Human Security Report (HSR)*:

To make valid generalizations about the conditions under which the risks of war increase or decrease, a much wider evidence base is needed than qualitative studies can provide. What have come to be known as large-N datasets, which include statistics on most countries in the world over long periods of time, were developed to meet this need. To ascertain whether some interesting pattern, a relationship between variables, obtains, the best approach is normally to identify the largest feasible sample of cases relevant to the hypothesis or research question, then decode cases on the variables of interest, and then to assess whether and what sort of patterns or associations appear in the data.”<sup>1</sup>

To identify long-term trends in armed conflict requires datasets which document conflicts worldwide over long time horizons. Below is a partial list of datasets produced by two of the principal conflict/peace research groups; the Uppsala Conflict Data Program (UCDP) and the Peace Re-

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<sup>1</sup> HSRP, (2011), 36.

search Institute Oslo (PRIO). The list is illustrative of the scale and scope of data collection required to conduct scientific research into the causes and consequences of armed conflict.

The outlines of the research process are visible in this list of datasets. First, criteria for what constitutes an armed conflict are established, the conflicts are identified and indexed, different categories of armed conflict are enumerated, and the combatants in these armed conflicts are identified and indexed (datasets 1–4). The duration of armed conflicts are measured, then the existence or absence of a state of conflict between every pair of actors in every year of the dataset (dyad years) is documented (datasets 5–6). Factors which contributed to the onset and/or intensity of conflict are accounted for (datasets 7–9), and the costs of conflicts are measured (dataset 10). Most recently, researchers have attempted to conduct analysis at the sub-national level and to study spatiotemporal patterns of conflict (datasets 11–12).

1. UCDP/PRIO Armed Conflict Dataset v.4-2011, 1946–2010. Each “armed conflict” represents the use of armed force between two parties, of which at least one is the government of a state, resulting in at least 25 battle-related deaths within one calendar year.
2. UCDP Nonstate Conflict Dataset v2.3-2011, 1989–2010. Identifies episodes of armed conflict where none of the actors are state governments. Includes start/end dates, fatality estimates, and conflict locations.
3. UCDP One-Sided Violence Dataset v1.3-2011, 1989–2010. Identifies episodes of unintentional attacks on civilians by armed actors resulting in at least 25 fatalities per year and per actor, including low, high, and best fatality estimates.
4. UCDP Actor Dataset v2.1-2011, 1946–2010. Identifies all actors (i.e., all combatant groups including states and nonstate organizations such as militias and insurgent groups) that appear in UCDP’s datasets on organized violence.
5. UCDP Conflict Termination Dataset v.2010-1, 1946–2009. Provides start/end dates and means of termination for each armed conflict.
6. UCDP Dyadic Dataset v.1-2011, 1946–2010. A dyad-year version of the UCDP/PRIO Armed Conflict Dataset.
7. UCDP External Support datasets v1.0-2011, 1975–2010. For each year of an armed conflict provides information on the existence, type, and provider of external support for all actors in the conflict.

8. PRIO Small Arms Transfer Database, 1962–2007. Identifies transfers of small arms between approximately 250 states and territories (usually based on government sources reporting import/export transactions).
9. PRIO Geographical and Resource Datasets. A collection of global datasets including locations and physical attributes of oil and gas deposits, diamond deposits, international boundaries, shared rivers and river basins, and physical distances between states.
10. UCDP Battle-Related Deaths Dataset v.5-2011, 1989–2010. For each armed conflict this provides the number of battle-related deaths in each calendar year of the conflict.
11. UCDP geo-referenced event dataset v1.1-2011, 1989–2010. Includes geo-referenced points representing incidents of organized violence in which one or more fatalities occurred. Also includes geographic conflict areas—polygons which enclose the violent events associated with a particular armed conflict.
12. PRIO-GRID v.1.01: A global spatial data grid at a  $0.5 \times 0.5$  decimal degrees (approximately  $55 \times 55$  km) level of resolution. Each grid square is attributed with annual observations from the UCDP/PRIO Armed Conflict Dataset, together with a range of demographic, socioeconomic, and physical environment variables.

There are numerous other datasets which will not be enumerated here in the interest of brevity. Other important conflict research centers include: the Correlates of War Project (COW—Penn State University), the Heidelberg Institute for International Conflict Research (HIIK—University of Heidelberg), the Center for International Development and Conflict Management (CIDCM—University of Maryland), the Human Security Report Project (HSRP—Simon Fraser University) and the Center for Systemic Peace (CSP—independent); their websites are cited in the reference section.

## Suggested readings

Published research in this field can be heavy on statistics jargon but the major research programs publish a variety of periodic summaries and monographs which are very accessible to a broad audience and are often tailored to the policy community. A selection of useful readings includes the following.

### **Human Security Report**

This report has been published four times since 2005; it combines an assessment of trends in armed conflict with focus chapters on selected geographic regions or special topics such as terrorism. The HSRP supports the data efforts of the UCDP and PRIO centers and reports extensively on their conflict trend statistics. The report also summarizes research findings by many independent scholars. The authors have a largely positive take on trends in the global security environment and assign signal importance to the role of the U.N. in reducing the incidence of armed conflict and in mitigating its effects.

### **Global Report**

This report is published biennially by the Center for Systemic Peace. CSP director Monty Marshall is a long time member of the USG's Political Instability Task Force and has been instrumental in the development of many key lines of research, including the Polity governance dataset. The conflict magnitude scores in the Major Episodes of Political Violence (MEPV) dataset are a useful innovation in the measurement of conflict trends. The Global Report also takes a generally positive view on global security trends, viewing them through the lens of an evolving global political system, in which the incidence of armed conflict is a function of the system-state, particularly the system's capabilities for collective action.

### **Peace and Conflict**

This report is the flagship publication of the Center for International Development and Conflict Management at the University of Maryland. It is published on a biennial basis for an academic and policy community audience, and is broadly similar to the Human Security Report in content and style. Featured statistical trends are derived from the CIDCM's datasets, while topical chapters delve into reviews of recent studies in the conflict literature.

### **Conflict Barometer**

This report—released annually by the Heidelberg Institute for International Conflict Research since 1997—is a year-in-review publication providing detailed narrative and statistical descriptions of every significant militarized conflict in the world, including many which have not crossed the threshold into violence. Its principal value lies in enabling year-to-year

comparisons of individual conflicts, and as an in-depth historical reference.

### **The Correlates of War Series**

Researchers affiliated with the Correlates of War Project occasionally publish book-length studies which explore selected dimensions of the COW's datasets. The most recent examples are the *Handbook of International Rivalries*, an in-depth examination of approximately 200 strategic rivalries between states which have accounted for the preponderance of interstate conflict over the past two centuries, and *Resort to War 1816–2007*, a reference volume and analysis of over 1000 wars fought during this period.

### **The Better Angels of Our Nature**

While not affiliated with any of the principal conflict research programs, Dr. Steven Pinker's study of the history of violence usefully places studies of armed conflict in the post-World War II era within a broader context of the evolution in all forms of human violence over the past two millennia. The book is well sourced and replete with statistics which document historical trends in the full spectrum of violence including animal cruelty, domestic violence, human rights violations, rape, homicide, and warfare. Pinker also brings his perspective as a psychologist to the topic, citing numerous psychological clinical studies with potential bearing on the root causes of warfare and other forms of violence. Pinker eschews political correctness and follows wherever the data leads; for example, he gives full weight to the role of youth bulges in contributing to civil war, a topic which is largely ignored by the conflict research community.

## Appendix D: Measurement

### Mechanisms of moral disengagement

These were assessed using a modified version of Bandura's (1996) measure. Twenty one of the original 32 items were used to account for cultural differences and the time constraints of using a telephone survey method. These items tap an individual's tendency to employ all eight cognitive mechanisms as a strategy for excusing, minimizing or justifying immoral acts. For each item an individual was asked to rate the strength of their endorsement or disagreement with statements exonerating unethical conduct on a scale of 1 (disagree) to 3 (agree). A total score was calculated by summing across the items and averaging them to obtain a mean score. Higher moral disengagement scores indicated a greater tendency to justify or excuse unethical conduct. In previous research, Bandura (2001) has reported adequate to high internal consistency for this measure. In the present study, the modified moral disengagement scale was found to have an alpha reliability coefficient of 0.74, indicating good internal consistency.

### Pro-social behavior

This was assessed using a modified version of Carlo and Randall's (2002) *Pro-social Tendencies Measure (PTM)*. This measure includes four items which tap the concept of altruism, or helping others without any perceived personal benefit. In previous research, Bandura (2001) has found that pro-social behavior, such as altruistic helping behavior, is highly negatively correlated with moral disengagement, such that people who exhibit high levels of pro-social behavior tend to score very low on moral disengagement. Therefore, having a selfless orientation towards helping others tends to limit or reduce the tendency to disengage self sanctions and internal moral standards. These four items included statements about helping others while receiving personal benefits or rewards and were scored on a scale of 1 (does not describe me at all) to 5 (describes me greatly). The items were reverse coded such that higher scores indicate higher levels of altruistic behavior and an average score was obtained by summing across the 4 items to obtain a mean score. The modified measure of altruism or pro-social behavior was found to have an alpha reliability coefficient of 0.53, indicating adequate internal consistency.



## Tolerance

This was measured using eight items that attempt to gauge an individual's level of comfort or acceptance of people from different religious, ethnic, political and gender groups. Three of the eight items were taken from the 2008 Gallup World Poll (e.g. "I always treat people of other religious faiths with respect") and the other five were developed for the purposes of this study. All eight statements were scored on a scale of 1 (Strongly Disagree) to 5 (Strongly Agree). A total tolerance score was calculated by summing across the items and obtaining an average score. Higher tolerance scores indicated greater levels of reported tolerance or acceptance of others from different backgrounds. This measure of tolerance was found to have an alpha reliability coefficient of 0.85, indicating good internal consistency.

## Opinions about violence

This was assessed using five questions focused on the level of agreement or disagreement with perpetrating acts of violence against civilians (e.g. "Violence against civilians in order to defend Islam from its enemies is the only way for Muslims to fight against powerful countries"). These questions were developed for the purposes of this study and were scored on a scale of 1 (Completely Disagree) to 5 (Completely Agree). Each question was looked at individually instead of summing them together to obtain an average or total score. This approach was used as each question looks at different potential reasons to justify the use of violence against civilians. Higher scores on each item indicated a higher level of agreement with using violence against civilians.

## Stressful life events

These were assessed using a modified version of Attar and colleagues (1994) *Stressful Urban Life Events Scale* measure. This was assessed to potentially measure the actual and perceived grievances of young pan-Arab males. The 19 items on the modified version were adapted due to cultural and age differences with the sample used in the development of the original scale. This scale attempted to assess if a variety of potentially stressful events had occurred in the past year (e.g., "During the last year did your family move to a new home or apartment?"). The items ranged from ordinary circumscribed events ("During the last year did you get poor or failing grades at school?") to incidents of severe violence ("During the last year have you seen anyone beaten, shot or really hurt by someone?")

and chronic hassles (“In the last year have you been discriminated against in some way?”). The items were scored as yes or no responses and a total score for each participant was calculated by summing the number of “yes” responses. The total score represented a frequency score of the number of stressful events that had occurred in the past year, such that higher scores reflected a greater number of stressful events. This measure of stressful life events was found to have an alpha reliability coefficient of 0.51, indicating adequate internal consistency.

## Appendix E: Data Analysis

### Correlations

Moral disengagement was found to be significantly negatively correlated to altruism and tolerance, such that higher levels of moral disengagement was significantly related to lower levels of tolerance for others and lower levels of reported helping behaviors. Additionally, moral disengagement was significantly positively correlated with stressful life events, such that individuals with higher moral disengagement scores also reported a greater number of stressful life events. Moral disengagement was also significantly positively correlated with 3 out of the 5 violence items, such that higher moral disengagement scores were related to a greater likelihood of agreeing with the use of violence against civilians. Finally, moral disengagement was found to be negatively correlated with age such that younger participants reported higher levels of moral disengagement.

### Analysis of variance or group differences

The sample was divided into two groups of high and low scorers on the Mechanisms of Moral Disengagement measure using a cluster analysis to segment the groups. The group of high scorers on Moral Disengagement (group size = 805) had a mean moral disengagement score of 1.80, while the low scoring group (group size = 1360) had a mean of 1.40.

A series of eight one-way ANCOVAs were run to look for potential differences between high and low scoring groups on the variables of tolerance, altruism, opinions about violence and frequency of stressful events. Age and the participant's comfort with the survey (as rated by the interviewer) were entered as covariates to control for their potential impact on the variables of interest. There was a significant difference between the high and low scoring moral disengagement group on altruism, such that the high moral disengagement group (Mean = 2.90) scored significantly lower on altruism than the low moral disengagement group (Mean = 3.44),  $F(3, 2161) = 138.79$ ;  $p < 0.0001$ . Also, the high moral disengagement group (Mean = 4.25) scored significantly lower than the low moral disengagement group (Mean = 4.47) on tolerance,  $F(3, 2161) = 32.12$ ;  $p < 0.0001$ . The high moral disengagement group (Mean = 3.14) scored significantly higher on stressful life events than the low moral disengagement group (Mean =

2.39),  $F(3, 2162) = 68.33$ ;  $p < 0.0001$ . Finally, the high moral disengagement group scored significantly higher on all 5 of the violence against civilians questions indicating that the high moral disengagement group was more likely to justify acts of violence against civilians than the low moral disengagement group.